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ORIGINAL ARTICLES.

OPERATIVE TREATMENT OF RETROVERSION AND RETROFLEXION OF THE UTERUS.

BY WALTER A. JAYNE, M.D.,
OF DENVER, COL.

ASIDE from operations for the repair of injuries of the pelvic floor, which Emmet, that master of gynecologic plastic surgery, insisted were sufficient for the relief of retrodisplacements of the uterus, and which are accepted by all surgeons as an essential part of any procedure for their correction, all methods suggested for cases of retrodisplacements such as come to the operating table, are found on analysis to consist of either shortening of ligaments or creating new attachments. Omitting, for present purposes, these obviously necessary plastic operations and confining our review to those procedures designed to control directly the position of the uterus, we find that a few only have met with any general favor or merit serious attention.

Operations by the vaginal route are now reported and discussed so seldom as to leave the impression that whatever vogue they had at one time is now passed. The principles upon which they were based were never accepted as sound, and they received their support largely because of the avoidance of external scar, and the supposed greater safety in attacking the intraperitoneal disease complicating these displacements by the vaginal rather than by the suprapubic route. The difficulties in the performance of delicate and often complicated intraperitoneal operations through the vagina, guided largely by the sense of touch only, and the not infrequently resulting accidental injury of neighboring organs, deterred many operators; and when it became known that grave dystocia followed in very many of the cases becoming pregnant after the various operations of vaginal and vesical fixation, these procedures came to be regarded with positive disfavor except by a few. The therapeutic results of vaginal operations, including the shortening of the round ligament through the anterior fornix, did not appear to be any better than by other methods, and when the technic of abdominal operations had been so far improved that the suprapubic route, open to the eye, was demonstrated to be safer from operative accidents, and as safe or even safer from postoperative complications, the *raison d'être* of the vaginal route disappeared and apparently very few still practise these methods.

It has been frequently noted that the tissues of the upper layer of the pelvic diaphragm adjacent to the uterus are relaxed, permitting the cervix to drop, and favor a backward displacement. Laudable efforts have been made from time to time to correct this condition and maintain the cervix at a higher level by plastic operations; by creating adhesions in Douglas's cul-de-sac, or by shortening the uterosacral ligaments from above or through the vagina. These efforts have been more or less desultory, and the success following the methods pursued has not been so marked as to attract any general attention or inspire confidence. This pathological condition, though important at present, appears to be either not diagnosed or, when recognized, ignored by most operators. When a satisfactory technic for its correction is developed, the operation may easily prove a most important auxiliary to other procedures, even if it cannot be depended upon as a sole reliance.

The shortening of the round ligament through superficial incisions in the groins, commonly known as the Alexander operation (though others deserve much of the credit for it), performed after various methods in minor detail, has been under consideration and practised for twenty years. The acknowledged advantage of being an external operation, with no risk of peritoneal complications or to life; of utilizing normal ligament (and the strong fleshy part of it) to retain the uterus in position in a physiological manner, involving no interference with the normal progress of pregnancy and labor, combined with a high degree of efficiency, have caused its adoption by many operators for that limited class of cases for which it is applicable.

Objection is made to this operation that the round ligaments normally have little influence, if any, in preserving the anterior position of the uterus; that they are occasionally absent, are not easily found, and are often so slender as to break in withdrawal, necessitating other operation; that suppuration and sloughing are liable to render the procedure valueless; that hernia not infrequently results; that the operation is not an efficient cure and does not stand the supreme test of pregnancy, and finally, that the scars are an offense. Those who have gained sufficient familiarity with it to cope successfully with its acknowledged technical difficulties reply that while these objections are occasionally valid, unfortunate results as due to inexperience or accident and avoidable, rather than an essential defect of the operation in principle. They contend that the ligaments, if absent at all, as is questioned are in fact absent in so few cases, as to make that contingency not worthy of account, and that with care they should not break; that suppuration and sloughing are due to defective technic, too much dissection and bruising of tissue, or tying the

ligatures too tight; that hernias may be avoided by properly placing the sutures and closing the canal; that in practice the ligament is efficient in retaining the uterus, and relapses are uncommon, even after parturition; that the scars are small, insignificant, and scarcely noticeable after a few months, and finally, it is claimed, the records do not show a single case of complication of pregnancy or labor attributable to the operation. The successful Alexander would therefore appear to be an ideal operation for these uncomplicated cases during the child-bearing period.

Efforts have been made to extend the advantages of this operation to displacements complicated by the minor forms of disease of the appendages by dealing with them through the internal abdominal ring after enlarging it. A number of successful cases have been reported, but the suggestion is too recent to permit of a judgment upon its relative value or the possibility of safeguarding against hernia.

When these displacements are complicated by conditions requiring abdominal section, it is the accepted opinion that some intra-abdominal method should be selected for their relief; and the choice lies between some operation upon the normal ligaments or creating a new attachment of the uterus.

Those who believe in the desirability of using the round ligament for holding the uterus forward have endeavored to make it efficient by folding and shortening, or by creating a new attachment between it and the anterior abdominal wall, or to the uterus, anteriorly or posteriorly, and incidentally shortening it. Some of these operations have been performed over a period covering a number of years and have been regarded as fairly efficient; yet, looking back, it would appear that even those procedures regarded with the most favor have been utilized largely as a makeshift to avoid the attachment of the uterus to the anterior abdominal wall, rather than because of the confidence felt in the method, either as originally proposed or as modified from time to time. All these intra-abdominal operations on the round ligament, in common with the external shortening of these ligaments, already mentioned, have the advantage of not interfering with the normal progress of pregnancy and labor. With one or two exceptions, to be mentioned later, these operations have depended for their permanency and success upon the slender, weaker part of the ligament as it passes through the inguinal canal rather than upon the fleshy, stronger, intra-abdominal portion, and upon the continued integrity of adventitious tissue, the adhesions between the folds of the ligament or at its new attachment. usualy peritoneal. These facts, in the absence of satisfactory reports of final results, have caused distrust of the real and permanent value of these operations, however successful the primary result, and a suspicion exists that relapses are common. For these reasons many who preferred the use of the round ligament in principle have, in the absence of a procedure which could be regarded as sound and reliable, accepted and practised the attachment of the uterus to the anterior abdominal wall as offering the best solution of the problem.

For others, suturing the fundus of the uterus to the anterior abdominal wall has been the operation of choice, and being simple in performance, efficient, and withal so quickly done as not to prolong a section materially, even when accompanied by shock, it has deservedly been held in the greatest favor by the majority of surgeons; and by many it has been used for those simple, uncomplicated cases not otherwise calling for section, and for which the operations of the Alexander type have been held to be particularly applicable.

The firm attachment of ventral fixation, as first practised, was soon found to interfere seriously with the normal development of the uterus during subsequent pregnancies, inducing various complications, among them abortion and dystocia in a very considerable proportion of cases. To avoid these complications, the slighter peritoneal adhesion of suspension of the uterus has been substitued, except possibly for patients approaching or past the menopause, without expectation of future pregnancy, or those physically sterile. It is urged that the adhesion, however slight, is an abnormal one, and occasionally gives rise to more or less annoying symptoms or grave complications. Reports go to show that even in the hands of competent men, with every care in technic, its character cannot always be so limited as to insure a sufficient mobility of the uterus to admit of its full physiological development during gestation and avoidance of complications in labor. The connecting band is of adventitious tissue, and while, if slender, it may easily stretch during pregnancy, it is admitted that it cannot be depended upon after labor to undergo coincident involution to such an extent as to be again efficient and insure against relapse. The operation is popular, and for years it has been the one most commonly applied in abdominal cases. Its advocates direct attention to the very large number of cases showing no untoward symptoms, yet the fact remains that cases are occasionally reported in which unfortunate results have followed, demonstrating that the disadvantages above mentioned are positive in a certain, though possibly small number of instances, and at least are not so significant as to be ignored. The autoplastic operation, with the use of peritoneal membrane to retain the uterus, has been tried, but with what relative value is not yet clear.

Whatever opinion may ultimately be held regarding the relative value of shortening the round ligaments in the groins and suspension of the uterus for cases of uncomplicated retrodisplacements, the value and efficiency of the fleshy inner portion of the ligament, as utilized in the Alexander operation, appears to be generally rec-

ognized, and attempts are being made to extend its use. Methods have quite recently been proposed of attaching a loop of the intra-abdominal portion of these ligaments to the anterior abdominal wall more firmly than by the peritoneal adhesions formerly depended upon, by threading a loop through a small wound in the peritoneum, muscle and fascia on either side of the median abdominal incision, and fixing it by suture, thus suspending the uterus by the strongest portion of the ligaments and imitating as nearly as possible in intra-abdominal work the result following the Alexander. Should experience show operations of this type to be free from postoperative objections and quickly performed, they may offer a ready means of correcting these displacements in cases in which abdominal section is required in a safer, more physiological and efficient manner than heretofore suggested, and go far toward giving a satisfactory substitute for attachment of the fundus to the anterior abdominal wall, especially for women in the childbearing period of life.

STONE IN THE KIDNEY; ITS DIAGNOSIS AND OPERATIVE TREATMENT.[1]

BY JOSEPH RANSOHOFF, M.D., F.R.C.S. (ENG.),
OF CINCINNATI, OHIO.

TWENTY-FIVE years ago a formal operation for stone in the kidney was unknown. Since Morris recorded his first case, a little over twenty years ago, the entire subject of nephrolithiasis has been so thoroughly developed that in any single paper of conventional length only a few points of special interest can be touched upon.

I intend, therefore, to beg your attention to the consideration of certain phases of diagnosis and indications for operative treatment. With the rapid strides that have been made in our diagnostic methods of studying the kidney, few cases are now operated upon for stone with a negative result. Nevertheless, the elating thrill which the surgeon expects to experience, when the finger touches the stone in the opened kidney, is not always felt. In its place is chagrin if not discomfiture, when the fullest search fails to reveal the object sought for. To whom has it not occurred? A few years ago the writer saw one of the foremost specialists in kidney surgery fail to find a stone in two cases within ten days. That a kidney may harbor a stone without giving rise to symptoms is now and then shown in the mortuary. A stone, even of large size, may be carried about for many years and led to destruction of the kidney by suppuration, and still give no sign of its presence.

I beg to present this stone, weighing over one ounce, removed, with the kidney, from a man of twenty-one years, four years ago. With the exception of one day spent in bed after an injury sustained while playing baseball, the patient had never known a day's illness. A large lumbar abscess formed and opened spontaneously while the patient was walking about. The sudden discharge was the first intimation that he had of anything wrong. He sought relief from the annoying fistula in the loin. Until his attention was called to the almost milky appearance of his urine, he did not know that anything was wrong about it. Similar cases have been recorded, but they certainly are very rare.

Until the technic of radiography was brought to its nearly perfected state, every surgeon who often operated on the kidney met with occasional disappointments. Even to-day, as has already been intimated, errors in diagnosis will occasianally be incurred. Two questions, necessarily correlated, at once arise, the solution of which would remove the obloquy attending a seemingly fruitless if not hazardous operation. They are: First: Have we any positive and absolute method of recognizing stone in the kidney? And second: Are there any other pathological conditions in the kidney, the symptoms-complex of which cover to a nicety that of stone? In every case of suspected stone, the symptoms should be studied, and perhaps a presumptive diagnosis made before resort to radiography is made.

In a broad way the symptoms may be divided into two great groups: (1) Those due to the supposed passage of the stone through the ureter,—the renal colic proper; and (2) those due to processes constantly at work in the kidney because of its containing a stone, a condition of chronic nephrolithiasis.

As an element of diagnosis, the kidney colic *per se* is largely overrated. In a very large number of cases of kidney stone there is no renal colic from beginning to end. It is supposed to depend upon the passage of a stone through the ureter. Many times the corpus delictum is voided in the natural way. These are the cases that do not ordinarily require surgical intervention. When it is remembered that many stones are fixed in the kidney, that only comparatively small stones can get into the ureter, and that smooth bodies like the ureteral catheter are tolerated for long periods without inducing pain, it must at once become evident that for many cases we must seek another explanation of so-called renal colic than the spasmodic contraction of the ureter.

A small stone comes into the bladder from the kidney, becoming the nucleus of a large stone or is voided without having ever produced a renal colic. That sharp or irregular stones in their passage produce pain there can be no question, but the explanation of the pain must be sought in the occlusion of the ureter, usually the upper part of its course, and the consequent increase of the tension of all the structures contained within the kidney capsule proper. A tumor of the kidney suddenly growing into the pelvis, the entrance of a mass of tuberculous detritus into the upper ureteral orifice, a twist of the ureter or a movable kidney, may each produce symptoms

[1] Address delivered before the Kansas City Medical Society.

which cannot be distinguished from those usually ascribed to the passing of a stone. Furthermore, increased intracapsular tension without obstruction of the outflow from the pelvis will often produce pains closely simulating renal colic. Very acute congestions of the kidney with hemorrhage into the parenchyma, acute exacerbations of the tuberculous processes, and, above all, acute venous congestions in chronic nephritis, not infrequently limited to one kidney, may give rise to pains that might be classed with renal colic. That a renal colic may be simulated by a temporarily impacted gall-stone is of general knowledge. Even with a successful skiagram showing a stone, the differential diagnosis is at times impossible.

Dr. Barnett (*Annals of Surgery*, vol. 37, page 36), well illustrates a case of this kind. Every surgeon has been called upon to do an interval appendectomy in the presence of a kidney stone. In the latter condition there is very often great tenderness over the crossing point of the ureter and the pelvic brim, and in cases of appendicitis developing toward the pelvis I have even seen such strangury as is usually associated with urinary disease. Morgagni already recognized the fact that inflammatory conditions of the kidney cause symptoms which closely resemble those of disease of the bladder. Rovsing remarks that since he has used the cystoscope, his cases of cystitis have been reduced 50 per cent.

Our more positive methods of recognizing stone should not lessen our attention to the urine. A careful investigation of quantity, composition and search for the presence of formed elements continued for weeks will rarely fail to point to or from the kidney as the site of the lesion.

With the close of the colic, or in its absence, there comes up for consideration the second, and, in my judgment, the more important symptom group, that of chronic nephrolithiasis. When the stone is firmly fixed in the kidney and away from the pelvis and the ureter, we may have to depend on it entirely. Pain, spontaneous or elicited by pressure, changes in the urine and the frequency of its expulsion are the general symptoms indicative of progressive aseptic changes in the kidney before it has come to palpable enlargement. While not one of them is in any sense pathognomonic, their grouping is such that a correct diagnosis can generally be arrived at. Of greater diagnostic import than spontaneous pain is that elicited by pressure. Bimanual examination, the patient lying on the sound side, will cause a sharp pain in the region of the kidney, or the course of the ureter, when the patient takes a very deep inspiration. Tapping the kidney after the manner of Mr. Lloyd, is an excellent adjuvant. For purposes of comparison, I have long been in the habit of examining my patient, while he stoops over before me resting his hands on a chair. With the extended fingers placed over the lateral costo-iliac interval, I make simultaneous and equal pressure with my thumbs along the lower borders of the last ribs from end to end. I know of no way in which pressure tenderness due to a stone can be better elicited. It is far more acute than that caused in the first stages of tuberculosis and renal tumors.

The urine in chronic nephrolithiasis presents abnormal elements which afford perhaps the most valuable single guide to diagnosis. I allude to the persistent presence of microscopic hematuria. Almost every specimen examined during a period of months will contain from one to twenty red cells in the field. If not easily found in one or two examinations, violent exercise will produce microscopical bleeding. This feature is of special importance, since the urine to the naked eye is seemingly normal. Even under the microscope the blood cells are often detected with difficulty, because of their decolorization; often they are little more than shadows. In a paper read eleven years ago, I directed attention to this important point in the diagnosis of kidney stone, and my experience since has emphasized its value. By itself it is the most valuable sign of nephrolithiasis. In this connection the relative number of white cells is important, since in aseptic nephrolithiasis they are few, whereas in the tubercular they are always numerous. Until pyelitis has developed, the preponderance of the red cells over the leucocytes, as found in the urine, is like that of normal blood.

Crystals in the urine, as indicative of stone and of its composition, are of very little diagnostic value. To be of any value at all the crystals must be found in the urine immediately after it is voided.

Except when a stone is in process of growth, crystals can hardly be expected. In fact, the patient with kidney stone rarely gives the history of having passed sand with his urine. In several of my cases very accurate examinations were made over protracted periods with negative results. In connection with urinalysis it is, of course, essential to determine the quantity and the presence of albumin. Likewise is it important to make a rigid search for casts, for in many cases where operations have been performed with negative results chronic nephritis with acute hyperemias have been found, at times unilateral, as already indicated above.

The temperature chart in nephrolithiasis is of secondary importance. In a few of my cases the colic itself was associated with fever and that without suppurative infection. As in cases of common duct, stones without suppuration in the duct or the gall-bladder, elevations of temperature occur, so it is in impaction of a renal calculus. In the chronic state of nephrolithiasis, on the other hand, slight elevations of temperature continued through a long period and with a distinct tendency to recur irrespective of any renal colic, are a most important element in the diagnosis. How these septic changes in the kidney occur about a stone is fairly well known. It does

not necessarily mean a pyelonephrosis with enlargement of the kidney sufficient to make it easily detectable. Even when dislocated into the wound for the removal of a stone, such a kidney with pyelitis and slight distention of the pelvis may not seem notably enlarged. When the kidney is greatly enlarged and has become converted into a pus sac, the diagnosis of stone is of secondary importance. All cases of pyonephrosis with sacculation present practically the same symptoms with the exception of those in which tuberculosis is the underlying factor.

Given the diagnosis of renal calculus, it is perhaps possible to differentiate parenchymal stones from those in the pelvis, but it is not possible to differentiate the latter from stones in the ureter. The X-ray has shown that perhaps 20 per cent. of stones are in the ureter, all of the symptoms indicating a higher site. This must account in part for the frequency with which stones were not found before radiography was used. In one of my earlier cases a most careful search of the kidney by splitting it failed to reveal a stone. Nine weeks after the operation, the patient passed a small ureteral calculus and was relieved of his symptoms.

The newer methods of cystoscopic, ureteral examination and separation of the urines, is of less significance in the therapy of kidney stone than in other surgical affections of the kidney requiring operation, since nephrectomy practically is never justified as a first operation for kidney stone. The cystoscope gives us invaluable data in determining in the first place that the bladder is free of primary disease, and frequently it shows us by an abnormal condition of the ureteral opening which kidney harbors a stone. The use of a wax-tipped ureteral bougie, as suggested by Kelly, will occasionally give a positive result, but it is a chance on which little reliance can be placed. Albers-Schönberg has shown in a number of cases that the ureter would permit a catheter to pass, although it contained one or more stones. Bierhoff has recently suggested filling the renal pelvis with a solution of boracic acid, which displaces a stone if present. The procedure is followed by a slight hematuria, which he considered positive. He cites four cases.

How perfectly a positive result by radiography displays a stone in the kidney, I beg to show by a number of plates. Although subject to occasional errors, a radiographic presentment is with our nearly completed technic a *sine qua non* for a positive diagnosis. Kümmel and Rumpel reported a series of 18 cases positively recognized in this way, and each one contained a stone. Joseph F. Smith was enabled to recognize a stone 13 times with success. Leonard, as is well known, in a report of 300 cases, found stones in 36, of which 50 per cent. were in the ureter. In five of ten cases operated upon no stone was found. That ossification of an abnormal rib cartilage or the presence of a phlebolith may simulate a stone in the plate, there can be no question. When one considers the small size of the many kidney stones and the depth at which they are placed in many fat subjects, it is difficult to conceive how the X-ray can invariably portray the presence of a stone. Perhaps in every case a negative result after repeated attempts allows the exclusion of a calculus, to quote from Kümmel and Rumpel. A single negative result is not conclusive. With the improved technic, stones, no matter what their composition, will cast a shadow. That the interpretation of this is sometimes erroneous, a plate of one of my recent cases shows very well. The patient had passed a number of small stones during the year. The picture showed four rather large stones. The operation revealed 20 stones, all of which could have passed except two. They were so closely packed together in the pelvis, that they appeared as four stones.

In considering the operative treatment of stone in the kidney, it must first be predicted that the really brilliant results achieved in this field have not impressed the profession at large with that confidence in the operation which, for example, belongs to operation on the gall-bladder. The reason for this doubtless is that before more exact methods were resorted to, negative findings were very frequent. Ten years ago I collected 44 cases of this kind. Doubtless the number could easily be trebled to-day. I have myself operated six times with negative results. In one case, indeed, the kidney was explored twice. The failure to find a stone where the diagnosis is made is now a very unusual thing. It is noteworthy in this regard, however, that I could find in the literature no cases in which death followed the exploration of the kidney for a stone. In many the operation leads to the discovery of conditions simulating stone which are remediable by operation. Among surgeons therefore, it is becoming an axiom that the presence of a renal calculus is an indication for operation. Although it is usually attended with less suffering than stone in the bladder, it is fraught with infinitely greater danger to life.

The development of pyelitis, or of pyonephrosis, or in the absence of a septic infection, the production of a chronic interstitial nephritis with atrophy of the pyramids and great thickening of the capsule proper of the kidney are sufficient indications for operation. When one has seen many cases of kidney stone, one can almost tell from the appearance of the capsule when the kidney is exposed, and the induration of the perirenal fat, whether or not a stone will be found within. Literature teems with cases, in evidence of the great danger which the subject of kidney stone runs from the sudden onset of calculous anuria.

Calculous anuria is, of course, an absolute indication for operation. Although in rare cases such anuria may last six to eleven days before ending in death, operation ought not be delayed for more than twenty-four hours. The anuria

must cause degenerative changes in the renal epithelium which may make the resumption of normal function difficult or impossible. Statistics show conclusively that in proportion to the time of interference the mortality of operation is low or high. The question as to the kidney to be operated upon is usually solved aright after considering the side of the last renal pains, the tenderness, etc. Unfortunately in those cases where it would be most needed, the aid from cystoscopic examination and radiography cannot be obtained. It is better in these cases to open the wrong kidney than not to operate at all. For the reflex anuria may in this way be relieved as has been shown in a number of cases. The cases in which operation is not indicated are those in which the patient from time to time after a severe colic passes a small stone. I beg here to present a number of stones, of which the patient had been passing many hundreds during a period of seven years. The patient is now seventy years of age, and for a year and a half has passed no stones. A remarkable feature of this case is that the stones, when passed, look rather as though a successful crushing operation had been done. Just what produces fracture of these stones in the bladder is something I have been entirely unable to find out.

In regard to nephrolithotomy, it may justly be said that no other major operation presents so low a mortality. Morris reported 34 aseptic operations with one death. Tuffier reported eight cases without a death. Of my 23 cases there was one death, due to intestinal obstruction from tight packing and pressure on the nerves to the colon. Israel reported a similar case. According to Rovsing there is a mortality of seven out of 115 cases. How much the graver operative interference in septic cases is shown by Morris, who lost 10 out of 43 nephrotomies and five out of 17 nephrectomies.

As regards the operation itself, the choice between incision of the kidney and incision of the pelvis, has, I think, been definitely settled in favor of section of the kidney. The ease with which wounds of the renal parenchyma heal, the extent to which the kidney can be incised for exploration and for removal of large stones and the greater danger of severe hemorrhage and of fistulæ remaining, where the pelvis is incised, have led surgeons to choose the incision through the kidney substance as the normal procedure in nephrolithotomy.

The operation is easy or difficult in proportion to the facility with which the kidney can be delivered into the wound. Where the shortness of the pedicle or extrapelvic adhesions interfere with the delivery of the kidney, the operation becomes difficult in the extreme. Surgeons choose the longitudinal, convex, marginal incision recommended by Giron in 1856. It is safe because the vascular anastomosis between the anterior and posterior halves of the kidney is by no large vessels. This line of safety which Kelly has recently proposed to call "Brödel's line" was previously described from corrosion preparations by Hyrtl in 1869. In none of my cases where this incision was done was the hemorrhage other than parenchymatous. I never have used a ligature within the kidney. To reduce this hemorrhage even to a minimum, the incision should as a rule not be longer than is needful for the introduction of the exploring finger. This makes the hemorrhage nil, while the search for the stone progresses. A short incision over the upper pole and another over the lower pole permits the examination with the finger of both the upper and the lower and the common pelvis, and permits us to reserve the so-called post-mortem section of the kidney for cases in which the finding of a stone is very difficult. Hemorrhage is easily controlled by the fingers of an assistant or by throwing a temporary rubber ligature around the pedicle. The objection to this method lies in the ease with which, by the manipulation necessary to accomplish it, a small stone might be pushed from the pelvis into the ureter, and the difficulty of sounding the ureter while the ligature is in place.

Retrograde catherization of the ureter must be considered essential to every operation for stone in the kidney. Even if a stone is not found in the ureter, a stricture, a valve or kink may be detected and relieved.

That the exploration of the ureter sometimes necessitates a very large wound has for many years impelled me in almost all of my kidney work to make the long, oblique lumbo-abdominal incision, from which by extension downward and inward the ureter can be exposed as far as may be necessary. In all aseptic cases the suture of the kidney is made to follow the removal of the stone. Immediate closure of the wound by suture is justifiable even in marked cases of pyelitis, if the ureter is competent to act as a natural drain. An exception in regard to immediate suture of the kidney must be made in those cases of aseptic nephrolithotomy in which anuria compelled the operation. In these cases it is doubtless safer to drain temporarily. When the kidney is enlarged and sacculated drainage is, of course, to be adopted. Nephrotomy for calculus pyelitis and pyohephrosis has a mortality of 21 per cent.

In view of the well-known frequency with which the second kidney is involved in calculus pyelitis, operative interference in this condition should be limited to incision, drainage and perhaps, in bad cases, to nephrotosis. It is remarkable how when a sacculated kidney is split in these cases and its margins stitched to the wound edges, and shrinking of the sacculation is established, the kidney gradually resumes a form something like the normal. Because of the completeness of the drainage, nephrostomy thus performed has a signal advantage over the older method of drainage.

Primary nephrectomy, as indicated, should never be performed for stone, except, as has occurred in the hands of Israel, when the hemor-

rhage is uncontrollable. Neither the branched form nor the size of the stone should weigh against conservatism. Stones weighing two ounces and more have repeatedly been removed and the kidney saved. Rovsing has recently reported the removal of one weighing five ounces, a fistula remaining for only a short time. It is in these cases of very large stones that profuseness of hemorrhage has necessitated immediate nephrectomy.

In conclusion, I beg to call attention to those cases in which the search for stone is negative. We cannot deny that there are other pathological conditions of the kidney, the symptom complex of which cover to a nicety that of stone. An analysis of them enriches our knowledge of renal pathalogy by two important data. They are: First, that chronic interstitial parenchymatous and capsular inflammation of the kidney may be limited to one side. Rayer already called attention to a case of this kind in his classical treatise on the kidney. Carefully studied cases of this kind are not numerous. I presented one with a section of the kidney before the Southern Surgical Association three years ago. The patient remains entirely well. Second. It is of prime importance that a surgeon should not consider an operation on the kidney in which he expects to find a stone negative in its results when changes in the kidney are found which, as in the case reported, cover to a nicety the symptoms of stones. Capsule splitting and the section of the kidney will doubtless relieve many cases which simulate stone, and which because of the impossibility of making positive diagnosis are not now subjected to an exploratory operation.

In conclusion, I would advise that in every case operated on with a result negative as to the finding of a stone, a small section of the kidney be removed for microscopical examination. It is only in such a way that minute changes of the kidney can be discerned, changes which, although seemingly slight, are often capable of producing, as in a number of cases reported, symptoms of great severity.

THERAPEUTIC VALUE OF COLORADO CLIMATE.

BY F. GILLETT BYLES, A.M., M.D.,
OF DENVER, COL.

IN these days of growing distrust in the all-curative power of drugs, increased attention is being given to the subject of hygiene and sanitation, as a means of prevention of disease, and an increased interest in physiological therapeutics as a means of treatment.

Being a resident of Colorado and in frequent contact with people who are sent here from the Eastern States, on account of ill health, I am impressed with the character of cases who come here expecting immediate recovery, and more impressed by the advice given many of them by their home physicians. Judging from the number of cases of tuberculosis, which are sent here in the last stages of the disease, or with a constant high temperature and are left to spend their few remaining days among strangers, without the comforts of home and often without either money or friends, we are led to believe there must be a mistaken idea among many physicians as to the class of cases that are likely to be benefited and the class that are made worse by our Colorado climate.

The hope of being able to suggest something on this subject which has been forcibly impressed upon me, since coming from Pennsylvania to Colorado, is the excuse for this paper.

The intelligent selection of cases to be improved by our elevated climate is probably best attained by a brief resume of the physiological effects of altitude.

Climates may be classified as either sedative or stimulating. Jacksonville or St. Augustine, Fla., or Biloxi or Bay St. Louis on the Gulf, are instances of health resorts in a sedative climate.

The climate of Colorado, on account of its elevation, is classed as a stimulating climate.

The principal atmospheric differences observed in moving to locations of greater altitude are lessened atmospheric pressure, lowered temperature and lessened humdity. The most important physiological effects caused by lessoned atmospheric pressure are a quickening of the pulse—about one or two beats for every 1,000 feet of elevation—and a quickened and deepened respiration.

Many persons in ascending Pike's Peak, which is 14,143 feet high, suffer with what is known as "mountain sickness." This is manifested chiefly by very rapid and irregular heart action, accompanied by a sense of suffocation and extreme shortness of breath greatly aggravated by muscular exertion.

It consists essentially in the inability of the person to breathe in enough oxygen, not that there is not enough in the atmosphere for his needs, but because, on account of the lessened pressure, he is not able to use properly what there is. We know that the quantity of oxygen per cubic foot lessens as the density of the atmosphere, but it has been shown that a man does not feel any inconvenience from lack of oxygen until the per cent., which is normally about 20.96, has fallen to less than 13.7

This distress caused by lessened pressure induces our natural forces to work out a means of compensation. This compensation is brought about in two ways. First, the individual learns to expand more fully every part of his lungs, his breathing is more rapid and also a great deal deeper and fuller. His chest measurements increase usually from one to two inches. Second, the oxygen carrying power of his blood is increased by an increased amount of hemoglobin, and also by an increase in the number of red blood corpuscles.

This condition, which enables the man to breathe easily, will be accomplished in from three days to two weeks, and will continue as long as

he remains at this altitude, returning to its former state upon his descending to a lower level.

This effect of lessened atmospheric pressure, which is very marked at places of great elevation, as on the mountain peaks, is, to a greater or less extent, effective at all places of less elevation, and the means which nature uses to bring about a compensation constitute one of the important means of cure to patients submitted to its influence. With this idea in mind we could, I think, easily predict what cases of lung disease would be benefited by a change to a greater altitude.

It is reasonable to suppose that the increased circulation and increased exercise of the lung caused by altitude, would add vigor to the lungs of one who inherited a tuberculous tendency or, if the altitude is not extreme, would be useful to one suffering from incipient tuberculosis, especially if of the more chronic form.

It is equally evident that cases of acute phthisis or those far advanced in the disease, would be made worse by the change. That such deductions are correct is proven by the experience of the profession in Colorado.

The air is cooler in Colorado than in places of the same latitude and less elevation. Generally speaking, the temperature of the air falls one degree F. for every 300 feet elevation.

Cool air is stimulating to the nervous system, also to respiration and digestion, and indirectly to appetite and assimilation with the attendant gain in weight and strength. Heat has the opposite effect. Cool air is almost always dry, at least the cooler the air the less moisture it can contain. In addition to the influences of the temperature on humidity, the great distance of Colorado from any large body of water, its sandy soil and other natural causes render the atmosphere very dry. The actual annual precipitation of Pittsburg is 3½ times that of Denver. The lessened humidity of our atmosphere has a marked effect on many forms of disease. There can be no doubt that a lack of moisture inhibits the growth of many of the disease-producing bacteria. Tubercle bacilli thrive best in a warm moist atmosphere, and their growth and development are undoubtedly retarded by the opposite conditions.

Excessive secretions of the nasal and bronchial membranes are checked by the constant inhalation of cool, dry air, and the diseased condition causing them is often thus remedied. Furthermore, the lessened humidity of the air has a great influence on our sunshine, not only in its amount but also in its effect on the comfort and health of the people.

There are fewer clouds and more bright days in Colorado than in the East. Denver has 42 clear days to every 27 clear days in Pittsburg. This enables health-seekers to spend most of their time out of doors, and the mild winters along the eastern slope of the Rockies make it possible for one to spend most of his waking hours and all of his sleeping hours, throughout the year, outside of stuffy ill-ventilated rooms. The greedy manner with which the dry air goes for water favors evaporation of perspiration.

This not only adds greatly to our comfort in summer, but lessens the depressing effects of heat. There are no sultry days here and no cases of heat prostration. There being little moisture in the air, the sun's rays pass through more directly. The heat of the ray is not absorbed by intervening moisture, and, on this account, the difference of temperature in the sunshine and the shade and during the day and the night—diathermancy—is greater here than at places of less altitude. The diathermancy increases about one degree for every 250 feet of elevation.

On account of the directness of the sun's rays, their therapeutic power is increased. The great abundance of light has, doubtless, an important influence on physical and mental conditions of invalids, and the germicidal influences of the actinic rays is doubtless greatly increased by elevation and lessened humidity. The greater freedom of the mountain air from micro-organisms and the rapid action of light on photographic plates, as well as the brilliant tints of mountain flowers, all indicate either a greater abundance or a greater potency of the violet and ultraviolet rays. In my opinion phototherapy is of no inconsiderable importance in bringing about the cures of Colorado.

I believe that it is an established fact that the per cent. of deaths from tuberculosis, in any locality, is indirectly as the altitude of the locality (omitting, of course, the cases contracted elsewhere). It is safe to say that the cases of this "great white plague" contracted above 6,000 feet, are very rare indeed.

Other things to be taken into consideration in the selection of a suitable climate for a sick person are, character of the soil, freedom from disagreeable winds, character and purity of drinking water, as well as hotel accommodations and opportunities for earning a living. In all these respects Colorado affords unequaled advantages.

From this study of the climatic conditions of Colorado and especially from the experience of the profession here, we are led to believe that benefit or complete recovery may be expected in the following classes of cases:

In all cases of an inherited tendency to tuberculosis, as a prophylactic measure; in tuberculosis of the bones or parts of the body other than the lungs, with a view to prevent pulmonary involvement; in early pulmonary tuberculosis when it occurs in persons who are not of a markedly nervous type and when the disease is not accompanied by persistent high fever and is of a chronic rather than an acute type.

In cases of moist nasal catarrh, when not caused by nasal deformities; in bronchial catarrh, with or without asthma, especially in children and young adults; in most cases of purely nervous asthma and in many cases of hay asthma.

In chronic empyema and unresolved pneumonia and in many cases convalescing from pneumonia, who are under fifty years of age. If the patient is old, has heart disease, or is greatly emaciated, a sedative climate is better, at least until a fair amount of strength has been gained.

Patients who are convalescing from other acute diseases or suffering from physical or mental exhaustion, from overwork, worry, want of exercise, malarial affection or tropical cachexia, mild cases of anemia, most cases of glycosuria and many cases of nephritis are improved by this climate. Articular rheumatism is less frequent and muscular rheumatism more common here than in the east.

Diarrhea and digestive disorders are not as prevalent and trachoma is very rarely seen.

But there are two sides to this question, and we must not fail to mention the contra-indications. Some of these relate to the patient and others to the disease.

Patients over sixty years of age should not, as a rule, move to places of great altitude, because their muscles have lost their elasticity and cannot accomodate themselves to the change.

The muscular fibers of the heart and arteries are of especial importance in such cases. More work is thrown upon the heart and arteries and most organic diseases of the circulatory organs are made worse. It is generally stated that this climate is contraindicated in cases of weak or congenitally small heart, and in functional disturbances of the heart without organic lesion. My own experience is not in accord with this idea.

I believe the constantly increased work thrown upon the heart, together with the increased gain in vigor, which is usually present, have the effect of so increasing the muscular tonus and regulating the nervous supply of the heart as to render its action more nearly normal.

The exhilarating effect of altitude on the nervous system is well known. Many residents of this locality are frequently obliged to change for a time to places of less elevation. If they do not they suffer with insomnia. For this reason persons of an extremely nervous type seldom improve here, although some cases of a gloomy tendency are much benefited.

As contra-indications in certain diseased conditions we will mention:

Consumption, with a tendency to rapid breaking down of tissue, associated with high fever. Cases of acute phthisis or phthisis florida, and those in the advanced stages of the disease, and all cases with a persistent high temperature, even in the early stages, are not improved by this climate. We believe in such cases the end is often hastened by the change rather than retarded.

Intermittent attacks of high temperature do not contraindicate resort to altitude, unless the temperature is excessive or the patient extremely nervous. Hemoptysis is not a contra-indication. Structural alterations of the heart, atheroma of the blood vessels, aneurism or emphysema, either alone or as complications of other diseases, forbid removal to altitude.

I cannot refrain, in this connection, from making some suggestions in regard to the home physician's duty to his patient in placing him in the care of some honest, legitimate physician at his point of destination. If the home physician should have no personal knowledge of such a professional brother in Colorado, the medical directories will enable him to form some kind of an opinion.

Very often, too often, in fact, patients come here uninstructed, and before they have time to leave the dêpot some big, fat drummer will offer his assistance in finding them comfortable quarters, and before leaving them will have informed them that he, too, came here for his health, and that three months ago he was so emaciated by tuberculosis that he could not stand, etc., but he will always end his story by the statement that he was treated by the world-renowned specialists of the "Cure All" Medical Co., and, as they had done so much for him, he will call next day and introduce strangers to these wonderful specialists. The result is easy to imagine; the patient yields, a positive cure is guaranteed in thirty to sixty days, and the company get $50 or $100 of the sick man's money to start with, and a fair chance of absorbing most of the balance, leaving him to starve himself that he may be able to keep his contract with them.

Another mistake physicians make, is to advise their patients not to take any medicine or place themselves under the care of the doctor here. Patients often tell me this is their physician's advice.

If a physician's advice as to suitable food, clothing, baths, exercise, employment, location, ventilation and care of the sputum is of use to the patient in the East it ought to be of equal service here, or, if the patient has been in a measure sustained or his *vis medicatrix naturæ* increased, by a judicious administration of strychnine, iron, arsenic, fatty emulsions or any constructive medicament in the East, it certainly seems to me, it would not be the part of wisdom to suddenly withdraw any or all of these adjuvants.

A sick man in Colorado needs medical care just as much as he does in the East, and the same medical care aided by the atmospheric conditions of the place will, in suitable cases, result in much greater benefit to the patient here than there.

The benefit of Colorado climate to a tuberculous patient will depend very much on a proper understanding on his part of the kind of life he should live here. A tuberculous patient will do better in the East with plenty of food and home comforts than in Colorado on a starvation diet. He had better live out of doors in the East than shut up in a stuffy room in Colorado.

DOES ABSENCE OF EXTERNAL INJURY LEGALLY DEMONSTRATE FRIGHT OR MENTAL ETIOLOGY?

BY JAMES G. KIERNAN, M.D.,
OF CHICAGO.

JUDGES of the State Supreme Courts have evinced a tendency to deny etiological value to anguish, fright or other psychic factor as a result of which damages can be obtained. In the case of Braun *vs.* Craven,[1] the Illinois Supreme Court emphasized this view. By a not unnatural evolution, attorneys have sought further to develop this view into the claim that external evidence of injury being absent, the injury resulting from an explosion must be regarded as due to fright or other psychic influence, and hence not a fitting subject for compensation under the views enunciated by the Illinois Supreme Court in the case just cited. This standpoint was taken by ex-Judge Sears and was sustained by Judge Chytraus, of the Supreme Court of Chicago, in the case of Baudler *vs.* People's Gaslight and Coke Company. The case, however, was appealed by Waters, Johnson & Baker, the plaintiff's attorneys, to the Appellate Court. The circumstances of the case, in which I was an expert for the plaintiff, are as follows:

The plaintiff brought suit against the defendant for personal injuries alleged to have been sustained March 6, 1899, by an explosion of gas in the basement of his house in Chicago. He was a German by birth, a carpenter by trade, who had built his own house and piped it for water and for sewerage, but not for gas. The defendant company had a gas main in the street in front of the house, but no connection pipe ran from the main to the house. For at least two months prior to the explosion this main had been leaking in front of the house. Several of the neighbors had noticed the smell of escaping gas. One of them told a man who read the meters of defendant in her house of the defect and he replied: "It is going to be fixed in a short time." Another neighbor gave evidence to the same effect. For two months the gas escaped through this leak, passing into the cellar and sleeping room of plaintiff's house. He smelt the odor but says he did not know what it was.

March 6, 1899, after a very uncomfortable time that night, he and his wife went down into the cellar to find out whence the smell came. They located it near a post. The wife struck a match on that post and an explosion occurred which moved a stove standing near by at least two feet and changed the position of the carpenter's bench a foot or more. When the match was struck the plaintiff was standing from four to six feet distant from his wife. It seems that neither he nor his wife were thrown down by the shock. A witness (whose house was fifty feet from that of plaintiff, and who was in his basement when the explosion occurred) says: "A big oak plank fell down. It was a big explosion all right."

[1] 175 Illinois, 401.

The plaintiff received no visible injury. Before the explosion he was a healthy man in body and in mind. His family physician says: "He was in good sound condition up to the time of the accident, so far as I know." Five other witnesses who had known the plaintiff for years testified that before the accident he was not nervous but healthy, sociable, a kind man, interested in his work. Immediately thereafter his physical health became impaired and he lost his mental balance. He became suspicous of every one, feared his wife and daughter would poison him, and was irritable, wandering from home and always complaining of smelling gas. He was taken to a hospital where he remained a short time. He went to Europe saying he would stay there all his life, but came back within six weeks. He is no longer a trustworthy or steady workman. His memory is defective. The only objective symptom I testified to finding was a heart murmur: "The disorder prevented one of the valves of the heart from closing and acting properly. If the heart were perfectly healthy before the explosion, and this occurred afterwards, I should be inclined to refer this murmur to the explosion. It indicates a weakness and irregularity of one of the valves of the heart. It shows the valve leaked. In the absence of other causes in a healthy person I should ascribe it to the explosion."

At the close of plaintiff's case the trial court, on motion of ex-Judge Sears, peremptorily instructed the jury to return a verdict for defendant. For this ruling an appeal was perfected. Presiding-Justice Ball, who delivered the opinion of the Appellate Court, said therein: "When a case is taken from a jury by a trial judge and comes to us for examination on appeal, the question to be determined is—the whole record being considered—was there competent evidence, which, from its reasonable intendment and inference, fairly tends to make out plaintiff's case. It was not for the trial judge, nor is it for us to weigh the evidence. This is a well-settled rule of our Court. Any other rule would leave the trial by jury to the judgment and discretion of the presiding judge, a result repugnant to the spirit of our jurisprudence and forbidden by our State Constitution and Federal Constitution.

"The evidence clearly establishes negligence of defendant as charged in the declaration. For at least two months prior to the explosion gas had been escaping from this main. Those who passed by noticed it. The evidence also tends to prove that the defendant through its employees, were twice notified of this leak, long enough before the accident for its repair, had reasonable diligence been used in that regard. No disturbance of the street was shown after the time the main was laid; from the evidence it would seem that this leak occurred because of faulty construction. If so, the person injured thereby, without fault on his part, has a right of action against defendant for all the damages sus-

tained by him therefrom, even though the defendant had no notice of the defect.

"This main was laid in the street with the great and exclusive privilege of supplying that part of the city with light for private gain. Through this main defendant passed gas known to be highly explosive. It was the duty of defendant to keep the gas within the main and connecting pipes until it was delivered to the consumer. To this end the defendant was not only bound to lay down a main of good material, with skill and care, but it was also bound to inspect the main from time to time and with such frequency that the defects caused by use or accident might be repaired with reasonable despatch. The care required of defendant is commensurate with the subtle and dangerous character of the material in its exclusive charge and control.

"Some of the authorities[1] hold that the mere fact of the escape of gas from a place under the control of a gas company is sufficient evidence to raise the presumption of negligence upon its part.

"The evidence shows that the house of plaintiff was not piped for gas; that he was not a consumer of defendant and that the gas escaping from this defective main passed into his cellar. We are satisfied the evidence shows such negligence upon the part of defendant that the case should not have been taken from the jury upon this point.

"Was the plaintiff guilty of such negligence as warranted the trial court in directing a verdict for defendant? It must not be forgotten that plaintiff was upon his own property. Therefore he was under no obligation to watch lest he might be injured by the unlawful act of defendant in flooding his premises with explosive gas.[2]

"Plaintiff says that while he detected the odor of escaping gas he did not know what it was. Upon this appeal, his statement in that particular must be taken as true. Not knowing the character of the odor he was consequently ignorant of its dangerous qualities. He did not create the situation, and he was justified in attempting to solve the mystery which rendered his house uninhabitable. Under these circumstances, if in so doing he had himself lit the match which caused the explosion he would not thereby be guilty of negligence, which, as a matter of law, would deprive him of redress as against the wrongdoer. Believing this to be the law, we need not enter into the vexed question as to how far he was responsible for the act of his wife in lighting the match. It is presumed he knew she was going to light it. A presumption arising from the fact that they went into the cellar together to ascertain the cause of their discomfort. The evidence fails to show that he knew in direct terms what she was about to do. She was not necessarily his servant, nor is he conclusively presumed to be responsible for the acts she might commit without his knowledge. Her contributory negligence cannot be visited upon plaintiff unless she was at the time his servant or agent.

"If the occupant of building knew gas had been escaping for some time and sent his servant into the cellar with a light whereby an explosion is produced, this will be evidence sufficient to support a verdict for defendant, but it will not warrant a judge in directing a non-suit.[1]

"Granting that the plaintiff was not guilty of contributory negligence, the trial judge in directing a verdict for the defendant, must have assumed that the plaintiff received no physical injury, but that all of his disability following the explosion, and which date from that time, resulted purely and solely from fright. The evidence goes no further than this, that the plaintiff received no *external* physical injury. He was struck by the exploding gas only. The force of such an explosion depends upon the strength of the explosion and the proximity of the party to the point of the explosion. That one may be seriously injured or even killed by such an accident without apparent external injury, we know, if we are permitted to rely upon common observation and knowledge. That gunners are sometimes disabled by the atmospheric concussion resulting from the discharge of heavy artillery, we must believe from personal observation and from the unvarying statements of writers upon the subject. One may be internally injured without external indications and that mind and body may be impaired by internal lesion or weakness as well as by external violence. The disability of the plaintiff followed the explosion so immediately that the inquiry at once arises, Did they not proceed from that cause?

"It seems to us to be far from true that all reasonable minds viewing this evidence would reach the conclusion that "the heart murmur" was caused solely by fright. If they would not so agree then the act of the trial judge, in directing a verdict for the defendant, is wrong. But we are not left to supposition in this case. Dr. Kiernan, in speaking of the condition of plaintiff, says: "A sudden change has occurred for which there is no adequate cause given, other than the explosion, which might have been sufficient to produce the condition found. If the heart was perfectly healthy before the explosion and this murmur occurred afterward, I should be inclined to refer this murmur to the explosion."

"This testimony tends to prove that the physical impairment of the plaintiff was the direct effect of the explosion. Its credibility and weight should have been submitted to the jury, whose duty it is to pass upon all questions of fact.

We have examined the cases cited for defendant, especially Braun *vs.* Craven, and are of the opinion that under the facts here presented they are not controlling." The judgment of the Superior Court was therefore reversed and the case remanded.

1 Shearman & Ran Neg., Sec. 697; Smith *vs.* Boston Gas Co., 129 Mass., 318.
2 Dunham *vs.* Daudelin, 41 Ill. App., 175.

1 Lannigan *vs.* N. Y. G. L. Co., 71 N. Y., 29.

COMPRESSED-AIR ILLNESS, OR CAISSON DISEASE.

BY CHARLES J. ALDRICH, M.D.,

OF CLEVELAND, OHIO;

PROFESSOR OF MENTAL AND NERVOUS DISEASES, COLLEGE OF PHYSICIANS AND SURGEONS, CLEVELAND; NEUROLOGIST TO THE CLEVELAND GENERAL HOSPITAL AND DISPENSARY; NEUROLOGIST TO THE CLEVELAND CITY HOSPITAL.

MAN, dwelling in the valleys and low hills through countless centuries, has attained a physiology which allows but slight variation from an atmospheric pressure of seven hundred and sixty millimetres of mercury. He early learned that any great departure from that pressure produced disturbances of his savage economy that were startling and unpleasant.

Some of the more hardy found that if they ascended the mountains, reaching a height of a mile and a half or two miles, the respiration became rapid, the heart quickened, the blood pounded in the temples producing headaches, oftentimes blood flowed from the nose, eyes and mouth, and there was nausea and vomiting. But all of their wanderings over the surface of the earth furnished them no example where the air was sufficiently compressed, because of a low altitude, to produce the slightest physiological disturbance. The valley of San Diego County, California, three hundred and sixty feet below the level of the sea, does not convey to the traveler any appreciable sense of air compression. In the deepest valley known to the world, in which lies Lake Assal, east of Abyssinia, seven hundred and sixty feet below the level of the sea, no unpleasant effects of air compression is to be discerned.

Not all creatures of the earth are subjected to this peculiar limitation of atmospheric pressure. It is recorded of the great naturalist, Humboldt, that after climbing the Cordilleras he saw the condors soaring majestically at the noble altitude of eighteen thousand feet. From this dizzy height, now and then, they would stoop to the surface of the sea, in a few moments of time, passing through a range of barometric pressure far greater than that between earth's highest mountain peak and her lowest valley.

It is known that fish live in the deepest portions of the sea and sustain the enormous pressure of miles of superimposed brine. When scientists began to bring these fish up from the profound depths of the ocean they were surprised to find that the bones were spongy and apparently ill-fitted to withstand a pressure of tons to the square inch. It was later assumed that it was the expansion of the compressed fluids and gases, which had disentegrated and rent apart the most solid portions of their piscatorial anatomies.

That it is possible for man to acquire an ability to live in comfort and health in very high altitudes is evidenced by the fact that the Quichuas, a healthy, vigorous, broad-shouldered, long-chested race of Indians, inhabit the high peaks of the Andes, fifteen thousand feet above the level of the sea. Also the "Cods" a Tartar race, live on the high plateaus of Thibet, and are people celebrated for their strength and suppleness; in fact, "Cod," in their language, means strength.

That man can adapt himself quite rapidly to high altitudes is shown in the records of the ill-fated Austro-French expedition to Mexico in 1863. It is recorded that the troops stationed on the high plateaus of Anahuac become quickly and completely acclimated.

The same curiosity or fancied necessity which led early man to the mountain tops soon caused his progeny to attempt the bottom of the sea, yet we are told that diving bells were not invented until the beginning of the sixteenth century. While literature affords some fragmentary observations upon the effects of compressed air on man while going down in diving-bells, yet we find but little that is satisfactory until after the year of 1839, when the French engineer, M. Triger, put to practical use the great principle of compressed air as a safe barrier against water and quicksand. Large bodies of coal were known to exist beneath the valley of the Loire, but above it was a hitherto impassible layer of water and quicksand. The ingenious Frenchman was equal to the task. By the use of compressed air, shafts were carried down in safety to the coal below, and one of the greatest problems of engineering was solved.

The application of the principle to pier-building for bridges was first made by Mr. Hughes, an English engineer, in 1850. Compressed air was not used in tunnel building until 1879. This was in the construction of a tunnel beneath the Hudson River, designed to connect Jersey City with New York.

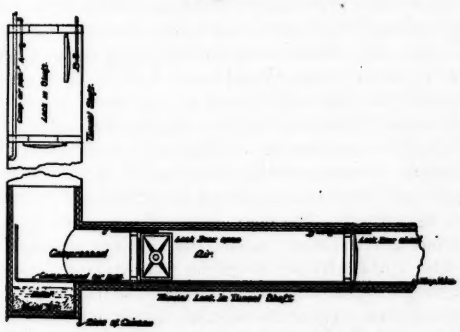
Soon after this principle was applied to these various engineering undertakings it was discovered that if the workmen were subjected to too high pressure or remained too long under pressure, as low even as one additional atmosphere, a peculiar, yet tolerably constant set of symptoms developed when they returned to a normal atmospheric pressure. Among scientific men this disorder has received various appellations,—"diver's paralysis," "caisson disease," and "compressed-air illness." Among the workmen it is known by various names, eacn usually significant of some prominent symptom. The "bends," when the pains are in the bowels or extremities; "chokers," when dyspnea and a peculiar choking feeling is present; "staggers," when vertigo is pronounced; "prickles," when the skin is the seat of a prickling sensation, believed by the workmen to be air coming through the skin; the "fits," when convulsions appear.

Before passing to a consideration of the disease I desire to call your attention to these sectional drawings which I have prepared, hoping that they will aid in the explanation of this interesting phase of submarine engineering. Some caissons are made of wood, others of iron or steel. Steel and iron caissons are usually cylindrical. A caisson may be compared to a huge box with the bottom turned upward, and

the open space underneath to the working chamber. It is constructed on ways, from which it is launched like a ship, towed to the desired spot, weighted with concrete and masonary until it sinks and its box-like edge, armed with an iron cutting shoe, rests on the bottom of the lake or river. Air-compressing engines are set to forcing air through the compressed air pipe into the working chamber. Within the chamber this pipe is provided with a trap valve which closes from its own weight and prevents the escape of compressed air in event of an accident to the machinery, thus providing for the safety of the workmen. The air is pumped into the chamber until all of the water has been forced out and the lake's soil lies dank and bare at the bottom of the working-chamber. The chamber is now ready to receive the workmen through man-holes left in its construction and which are provided with locks. These locks are supplied with two strong doors which swing downward and have air-tight fittings. Each one is pierced by a pipe provided with an air-cock within the lock.

The passings into and out of the working-

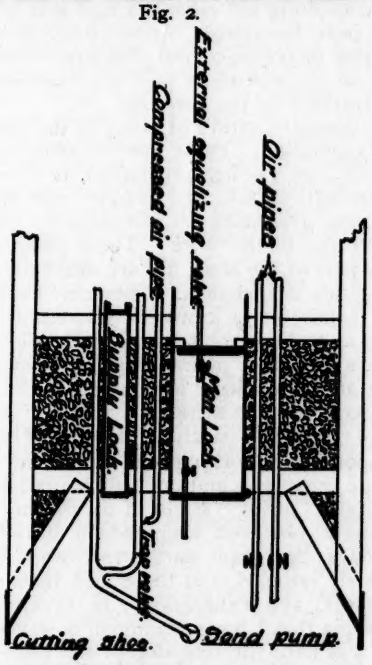
Fig. 1.



chamber are respectively called "locking in" and "locking out," and as around these transitions is grouped much of the etiology of this disease, I desire you to obtain a correct idea of these procedures. When the caisson is towed to its position and sunk, the lower door of the lock is closed and the upper left open, as is shown in the shaft of Fig. 1. Air is then forced into the chamber until the water is displaced and the chamber is ready for the workmen. To go into the compressed-air chamber,—"locking in,"—the men pass through the upper door into the lock, close the door and the air-cock B (Fig. 1), and then open the air-cock A, which allows the compressed air to enter the lock until the density of the air in the lock equals that of the working chamber below, when the door falls of its own weight and they are free to enter the chamber. In "locking out" the process is reversed. The lock is entered from below, and the lower door and cock A closed. Cock B is then opened to allow compressed air to escape until the lock pressure equals that of the atmospheric air, when the door falls, allowing the workmen to pass.

When the lake bottom has been well excavated the workmen open one of the air-cocks in the air pipes, which are seen in the working-chamber of Fig. 2, and allows some of the air to escape until the great weight of the caisson causes it to settle deeply into the soft mud and silt. In the meantime, and above the water-line, the masonry of the piers is building on the top of the caisson, leaving passageway for men and material to the working-chamber below. The great weight forces the caisson downward, and is called, "settling the caisson." The workmen excavate the silt, which is carried to the surface by means of sand-pumps, blow-pipes, and buckets, until they are again down to a level with the cutting shoe of the caisson, when the air pressure is once more lowered and the caisson allowed to sink. This

Fig. 2.



Sectional View of Wooden Caisson and Working Chamber

maneuver is repeated until a solid foundation is found for the pier. Concrete is then "locked in" and the whole working chamber is filled; and lastly the locks are removed and replaced by the same material. When the shaft is sunk for tunnel-building the process varies only in detail.

Did time permit, it would be interesting to recount the early observations of compressed-air illness.

Since the beginning of the great water tunnel at Cleveland, five miles in length, underneath the bed of Lake Erie, I have had the opportunity to observe and study more or less completely, over fifty cases of caisson disease.

On request of Dr. Sollmann, the secretary of the section, I shall attempt a discussion of the clinical phases of this interesting and remarkable

disease, using the observations of these cases as a basis for my remarks.

The cases observed presented almost every phase of the affection, and varied in severity from a transient attack of pain or giddiness, to violent convulsive seizures, rapidly developing coma and death. Inquiry of the patients and also of Dr. Frank Roth, who was for some months stationed in Crib Number 2, reveals the fact that almost every one of the men at work experienced attacks of pain in the joints, or the flesh, or abdomen, vertiginous attacks, dyspnea with choking sensations, and attacks of prickling of the skin. The majority of these fifty cases observed were merely exaggerated instances of the almost daily experiences of the "sandhog man."[1]

In consulting my records I find that four suffered from hemiplegia, fifteen from paraplegia, two from monoplegia, and nine from violent vertigo. In the remainder pain was the reason for their entrance of the hospital.

The transient nature of many of the symptoms is very puzzling. Pains after coming out from "the air," as has been remarked, is so common that ordinary attacks are thought little of by the workman, who takes his refreshments and sleep and returns to the work. These pains may be in any part of the body, but are usually about the large joints or abdomen. They may be so slight as to cause but a transient discomfort, or so severe as to be beyond human endurance.

Not a few cases of transient hemiplegia, paraplegia and monoplegia are observed. Indeed so evanescent are the symptoms that the workmen may be completely paralyzed in some of his members soon after "locking out," yet so far recover as to go down two and one-half hours later with his regular "shift." Eight of the fifteen cases of paraplegia observed averaged in duration but four days; two made partial recoveries, two are hopelessly crippled, and three died from cystitis, bed sores, and exhaustion. In every case of paraplegia that I have examined, however slight, there was paralytic retention of the urine. Two case of paralytic retention of urine without other paralysis were observed. Aphasia, usually quite transient, was observed four times, once alone, once with paraplegia, once with a combined paraplegia and hemiplegia, and once with a right hemiplegia.

Vertigo, in every degree is met with. It is so common as to cause few of those attacked to stop work on account of the "staggers." I recall one patient who worked eight hours under a pressure of thirty pounds additional[2] on his very first shift. When he came to the air he said he thought the top of his head was blown off. His vertigo was intense and he could not stand. He soon became unconscious and remained unconscious and insensitive for four days.

The following abstract of the case of Thomas R., seen at the City Hospital, is given principally to illustrate a case of the "chokes," but of great interest because of the number and variety of symptoms.

The patient began working in the waterworks tunnel November 15, 1899. December 22, after being in the "drift" eight hours, he came up feeling well as ever, sat down at the table for supper and almost immediately his legs, from the hips down became numb and at the same time he experienced dizziness. Upon attempting to stand he found that all muscular power was gone from his legs and he promptly fell. He was placed in a hot room and his legs rubbed. The next afternoon he was brought ashore and sent to a hospital. He was unable to pass urine from time of attack until two or three days later. When catheterized at the hospital a large quantity of thick turbid urine was removed. After four or five catheterizations the urine passed from him uncontrolled, from paralytic incontinence of the spincters. This condition continued. He could, however, feel the urine passing through the urethra. Feces were discharged without patient's knowledge or control.

About the fifth day sensation returned to his legs as suddenly as it had departed, and about the same time he became able to move those members to a very limited extent. A little later pains appeared in the large joints and some of the muscles, especially those of the thighs and abdomen, and were so severe, at times, as to be almost unbearable. Occasionally they would appear in the head and were accompanied by blindness, nausea and vomiting. At times, when the legs were extended and patient on his back, a leg and thigh would suddenly be brought to extreme flexion causing excruciating pain, mostly in the abdominal muscles. Again he would experience what the workers call the "chokes," which he said was even harder to bear than the other pains. The sensation was such as would be produced by a tight grip about the neck which almost strangles. It was accompanied by nausea, usually with inability to vomit. With it came cramp-like pains in the abdomen and great difficulty in breathing. The sufferer died February 27, 1900, of exhaustion, hastened by cystitis and a large bed sore over the sacrum.

From a study of these cases I can briefly sum up the symptoms as they appeared to me:

Symptoms.—The symptoms of true compressed air illness occur only during or after the patient's return to the normal atmospheric pressure. In point of time they may occur during the transition from the compressed air to the normal atmosphere,—"locking out,"—immediately after "locking out," or they may be delayed several hours. Every grade of caisson disease may be met with, from transient twinges of pain in an about the elbows and knees, to convulsions, coma and death. The pain is intense, with remissions and exacerbations; particularly severe in the stomach and about the large joints;

1 Pressure worker, or, less elegantly, "sandhog man," is the name these workers apply to each other.

2 By this is meant 30 lbs. in addition to the one atmosphere at the sea level.

the victim is bent double with pain, hence the term "the bends." The pain is intolerable.

The duration of the disease depends largely on the type. The neuralgic cases last from a few minutes to five or six days, although the usual duration is about twelve hours. The duration of the paralytic cases can only be measured by the amount of damage sutained by the central nervous system. Some paralytic cases recover quickly; others perish from exhaustion and cystitis after a lingering, painful illness. Many are permanently crippled. The lethal cases are usually of rapid onset, and death is swift and sure. Some of the brain types may be transient, and present headaches, giddiness, double vision, incoherence of speech, and sometimes unconsciousness and convulsions.

The paralytic forms are atypical, with the greatest tendency or paralysis of one side or both lower limbs. The bladder and bowels are almost certain to be weakened or paralyzed. This often occurs when little or no evidence of paralysis exists elsewhere. Any member of the body may, through paralysis, lose the power both to move or feel, and yet be the seat of atrocious pain, a genuine *anesthesia dolorosa.*

The fatal cases, frequently convulsive from the start, are very severe, and usually develop a deepening coma which ends in death.

Aside from the symptoms proper of caisson disease we have a number of disturbances of minor importance. Most prominent among these are the symptoms in connection with the ears. These symptoms, however, appear during the process of "locking in" and "locking out," and consists of pressure exerted on the ear drums either externally while "locking in" or from within outward while "locking out." Not infrequently the ears are "blowed out" as the workmen express it, in which case a small perforation of the drum takes place. This is looked upon by old hands to be a fortunate occurrence, since they will no longer be troubled with the "air in the ears." While undergoing compression the drums of the ears should be inflated, and while undergoing decompression rapid swallowing is necessary. If the Eustachian tubes are closed through some catarrhal trouble or cold severe pain and rupture of the drum is very liable to occur. It is quite possible that some of the cases of violent vertigo not infrequently observed, are due to the effect of air upon the otic structures.

Etiology.—The causes of caisson disease may be divided into predisposing and exciting.

The predisposing causes are those which relate to the workman's bodily condition and habits. There seems to be a special predisposition on the part of some persons who are affected by a short exposure to a pressure that ordinarily affects no one, while others appear to enjoy a surprising immunity although exposed to all of the causes recognized as most active in producing this nineteenth century disease.

It was early remarked that the liability to caisson disease is very much greater in those engaging for the first time in "pressure work." It is also a matter of record that those who begin with the work when the pressure is low, and continue at the work during the sinking of the caisson, and are daily subjected to the gradual increase of pressure, are much less liable to suffer than those engaging when the pressure is high. That this apparent immunity is only relative, is shown by the fact that some very serious attacks occur in old hands, and very often without discoverable cause.

Dr. Andrew H. Smith, while observing the cases of caisson disease that developed during the sinking of the piers of the East River Bridge, in New York, was convinced that individuals with a tendency to corpulency were especially predisposed to the disease.

Jaminet insisted, and it is now a common observation of experienced men, that to enter the caisson while fasting is hazardous. Very unpleasant effects are oftentimes felt on entering the caisson with a full stomach, before the lapse of from forty to sixty minutes after the meal.

Douchy and others have maintained that alcohol is a potent cause of the attacks. Disease or any depression of the vital forces from fatigue, loss of sleep, debauchery, or alcoholic excesses, no doubt increases the liability to an attack.

The exciting causes of the caisson disease are those excitations which determine the advent of the attack. There are seven paramount excitants to the disease which I will name in the order of their importance: (1) Degree of atmospheric pressure; (2) length of sojourn under such pressure; (3) the rapidity of the transition from the condensed to the normal atmosphere—"locking out;" (4) insufficient lapse of time between leaving the condensed air and returning to the same; (5) lack of sufficient ventilation of the areas under pressure; (6) exposure to a damp, chilly air after leaving the lock; (7) active muscular exertion after "locking out."

It is very doubtful if the disease ever occurs in workmen subjected to less than fourteen pounds pressure, and both its severity and frequency increase in a direct ratio to the rise in the atmospheric pressure multiplied by the length of time exposed to such pressure. Men can usually work with comparative safety for a period of eight hours under a pressure of from fifteen to twenty pounds in addition to the one atmosphere of the surrounding air; under a pressure of twenty to thirty pounds, six hours divided into two "shifts" of three hours each; under a pressure of thirty pounds, two hours divided into two "shifts" of one hour each; but under a pressure of from forty to forty-nine pounds, two "shifts" forty minutes each are all that can be borne with any degree of safety. The caissons at Memphis were sunk one hundred and twelve feet below the water level, the deepest caisson work, I believe, that then had ever been accom-

plished, and the pressure reached the highest known to caisson sinking—forty-nine pounds. The Eads bridge at St. Louis, also demanded a pressure of almost the same amount. One of the shafts of our water tunnel, now in course of construction, is one hundred and sixteen feet deep, but because it is in clay, needs little more than forty pounds pressure, enough, being in clay, to furnish many cases of the "bends."

The necessity for a proper lapse of time between the "shifts" of workmen is very important and should be insisted upon. In the too rapid transition from the condensed to the normal atmosphere—"locking out"—lies a most frequent cause of caisson disease. In fact, it is quite certain that if sufficient time were allowed for "locking out," the accident would never occur unless the exposure to pressure had been prolonged beyond the before-prescribed limit of time. A time limit should be fixed for "locking out," allowing five minutes for the first twenty pounds pressure and for each additional pound one-half minute should be added.[1]

Experience has taught "pressure workers" that hot coffee and hot blankets to prevent chill are very useful. At Rob Roy, Ark., fourteen men came out of a shaft and laid down on benches in a poorly constructed building, and as the weather was warm, went to sleep with little cover; three hours later a "norther," one of Arkansas' cold wind-storms arose, and nine out of the fourteen men were severely and immediately attacked by the "bends." This is a good illustration of the effects of cold after coming out of the caisson.

Few authorities even mention the importance of active ventilation of the condensed-air area as a preventive of the disease. My attention was called to it by a patient, an engineer, who tells me that whenever experienced workmen strike clay they grimly remark, "It's full of the bends," notwithstanding that they are aware that clay demands less pressure than sand. In the sand at Memphis, although the pressure reached forty-nine pounds, there were fewer cases of "bends" than in our clay-walled tunnels, with a pressure of about thirty pounds. This was, no doubt, due to the method of excavating sand by the use of blow-pipes, which demands a rapid change of air in the caisson. It is quite probable also that the loss of air through leaks in the caisson causes a greater amount of air to be forced into the caisson to keep up the pressure, thus perfectly ventilating the narrow place. It is also certain that the use of iron cylinders, instead of the less tightly made wood caissons, gives rise to "bends" more frequently on account of the lessened ventilation. Practical workmen are all aware of this fact.

1 Since the above was written, examination of a number of cases and conversations with Dr. Frank Roth causes me to believe that it is not so much the decompression as it is the length of sojourn under the pressure that determines the attack. The lock tender is an instance of this fact. He passes in and out with a reckless regard to time, is never long under pressure, and, as has been frequently remarked by other observers, *never is attacked.*

The first scientific writer who called attention to the importance of ventilation was Hunter, whose thesis concerning the disease as observed during the construction of the Forth bridge, unfortunately was not published. He is quoted by Snell, whose carefully recorded observations made during the construction of the Blackwell tunnel, London, are of great value.

The following table, taken from Snell's book, "Compressed-Air Illness" will serve to illustrate the tremendous importance of ventilation, which our tunnel and city engineers entirely overlooked until nearly half the work was completed, and many workers maimed and killed by an ignorance or carelessness little less than criminal.

Cubic feet of fresh air per man, per hour, in average daily shift.	Number of days.	Cases of illness.	Estimated cases of illness for one hundred days.
Below 4,000	56	16	28.5
From 4,000 to 8,000	47	9	19.1
From 8,000 to 12,000	71	8	11.2
Above 12,000	41	0	0

Years ago, before electricity was used to light compressed-air chambers, the soot from the lights was one of the terrors of the workmen. The respiratory tract became so saturated that for many months after the expectoration would be tinged with black. It was discovered that this was due to the fact that air under pressure does not circulate. Yet we find in the lake tunnels the engineers were ignorant of these facts, or they have little reckoned the value of human life, for the only pipes conveying air to the tunnel ended just beyond the lock, while the workmen were as far as seventeen hundred feet distant at the face of the tunnel. And they gravely wondered at the City Hall why there was an explosion in the tunnel and a few lives lost!

When one great explosion took place in the tunnel with a loss of eleven lives, the pipes would admit only nine thousand cubic feet of air per hour to the eight men and two mules. Allowing the mules the consumption of air equal to seven men, we have but six hundred cubic feet of air per man. We have no law in Ohio for the protection of men working in tunnels, but I would suggest that the Humane Society ought to have looked after the mules!

On leaving the caisson there is a great increase of heart and lung action; the subject often gasps for breath; he is manifestly ill-fitted for any severe exertion, and abundant experience has demonstrated that many cases have been caused and others aggravated by the error of having the locks low down in the shaft instead of at the top. Triger demonstrated at Challonnes that when the men made the ascent of seventy feet under pressure to the lock at the top of the shaft, it was done more easily than in the open air. Elevators are now used in deep shafts, and certainly their use is attended by a lessened number of attacks.

A NEW CASE OF CHLOROMA WITH LEUCEMIA, WITH A STUDY OF CASES REPORTED SINCE 1893.

BY GEORGE DOCK, M.D.,
AND
ALDRED SCOTT WARTHIN, M.D.,
OF ANN ARBOR, MICH.

(Continued from Page 976.)

OBSERVATIONS ON CHLOROMA SINCE 1893, BY DR. DOCK.

Since 1893 twenty-one cases of chloroma have been reported more or less fully. Two more were mentioned by Beneke and Drozda in discussions. Bramwell refers to probable cases known to him, as well as an interesting case described in his paper referred to in this article, in which some green lymph glands were found in the body of a patient who died of acute leucemia. Dr. Trevithick (personal communication) has heard of another case. No doubt some of the cases of symmetric tumor of the orbit, examples of which are frequently reported, are really chloromatous. I have heard indirectly of two unreported cases of chloroma observed in German clinics, in one of which there was leucemia. Many authors reporting cases of chloroma refer to the greenish color of the lesions in ordinary cases of leucemia. It is not necessary to discuss this particularly, but I shall refer later to a most interesting case observed by Türk.

Sex, Age, Duration.—In the present series of 22 cases there were three females, 19 males; or, in both series nine and 29 respectively.

The average age was 18.8 years, or three and one-half years older than in the former series. The average is raised by the occurrence of four cases in persons between thirty-eight and fifty-two years; 15 cases were less than twenty-five years old, 12 less than sixteen, one ten months.

The average duration was 5.5 months. In 10 it was four months or less, two each being stated as one and two months. In one case it was one year, another thirteen months, in a third one and a half years.

Location of the Chloromatous Growths.—Regarding the seats of the peculiar green formations, the data in the later cases resemble in general those of the earlier series. Some part of the head was affected in all but two of the cases in which the examination was complete. In Bramwell's case and our own the skull was not examined. In Gümbel's case the orbit, temples, and periosteum of the base of the skull were not involved, but there were green masses in the dura of the brain. In Rosenblath's two cases the orbital tumors were not adherent to the periosteum, but seemed to proceed from the lids (in one also adherent to the optic nerve), and the cranial bones and periosteum were free from chloroma. In one of the cases the nasopharyngeal space contained green masses. In Sternberg's case the head showed no involvement. The most frequent seats in the head were the orbits (12 cases), usually involving the periosteum; the dura or sinuses (9 cases); temporal bone, especially in the auditory region (7 cases); the temporal fossa (8); less frequently the sphenoid (3); ethmoid (2); the choroid plexus (2); the nose, nasopharynx, maxillary antrum, pterygoid fossa, soft palate, gums, mastoid cells. The vertebræ were affected in 9 cases, usually in the periosteum of the bodies, sometimes in the dura, sometimes the periosteum of the processes, or the fat in the vertebral canal. The sternum was affected in 7 cases, in the periosteum either front or back, or eroding the bone (Rosenblath); sometimes the growth was continuous over the sternum, clavicles, and ribs. The ribs were involved in 8 cases.

The other bones were not so regularly examined, but green infiltrations or tumors were found in the periosteum of the sacrum, coccyx, iliac bones and the bones of the extremities, in the diploë of the skull, and in various flat and short bones. Chloroma was found in bone-marrow in 7 cases. The liver was the seat of green growths in 8 cases, the kidneys in 12, spleen 3, stomach once, (Weinberger), intestines three times (twice in the appendix). The lungs, pleura, pericardium, endocardium, the heart muscle (Dunlop) were rarely affected, also the serous and synovial membranes. The lymph glands were frequently involved, but in one case (Klein and Steinhaus) it is expressly stated that the lymph glands were without pathological changes, the growths affecting the periosteum of the bones of the head and trunk, the kidneys, prostate, and bone-marrow of the femur. The cervical glands were most often involved (11 cases); less frequently the axillary, inguinal, submaxillary, mediastinal and bronchial glands, and those in the portal fissure of the liver, the lesser curvature of the stomach, around, above, or behind the head of the pancreas, the prevertebral and mesenteric glands. Other locations were: the conjunctiva, tonsils, mucous membrane of the epiglottis, larynx, arytenoid cartilages, thyroid gland, thymus, bladder, prostate, urethra, ovaries, mammæ, pancreas, diaphragm, pelvic connective tissue and periosteum; the insertions of many muscles, as the temporals, intercostals, psoas and dorsal muscles; the brachial plexus, the adventitiæ of arteries and veins, or even all the coats of the vessels, the subcutaneous tissue (Stevens), and the skin (Schmidt, Bramwell, Hitschmann).

The bone-marrow of the long bones was the seat of chloroma in seven cases (Schmidt, Paviot and Gallois, Paviot and Fayolle, Rosenblath, Dunlop, Trevithick, Dock and Warthin), in several of which the flat and short bones were involved. In six other cases (Rosenblath II, Bramwell, Gümbel, Weinberger, Sternberg, Türk) the fatty marrow was altered, either red or grayish-red. In some cases both kinds of change were present. In some cases the bones were not examined, in some others the examination was limited to a few bones, and inasmuch

as the affection of the bone marrow is not always symmetrical we cannot be sure that in the cases with negative results there were no green foci at all in the marrow.

Of the associated changes it is not necessary to mention any except tuberculosis. This was found in the lymph glands in the cases of Schmidt, Rosenblath I, II, and Koerner. In the latter Lubarsch found tubercle bacilli in the faucial tonsil and several enlarged glands in the neck.

Clinical Features. Most of the cases reported since 1893 show a general resemblance to the typical cases in the earlier series. Among 18 cases in which the clinical histories are given, early weakness was noted in 9, pallor or anemia in 11, exophthalmus in 11, swelling and eversion of the lids in another, deafness in 10, swelling of the temporal region in 9, swelling of the face in 3 more, enlarged lymph glands in 8, emaciation in 6, rapid pulse in 6. Pain was often a prominent symptom, and was most often felt in the head, eyes, teeth, or ears, or in the hips or legs. Hemorrhages in the skin or mucous membranes were noted in 8 cases. Blindness occurred four times. The liver was enlarged in 3, the spleen in 7 cases. Albumose (Bence-Jones) was present in Weinberger's case. In both of Rosenblath's it was absent. In other cases there are no evidences for or against. It is noteworthy that in the 3 cases cited the bone-marrow was altered.

Some of the cases require more detailed reference.

In Lang's case, a man, aged fifty-two years, was seized with violent pain in the head and teeth three months before admission. At the same time a hard tumor appeared on the right cheek, with obstruction of the nares and pain in the right eye, with exophthalmus and blindness.

The tumor became adherent to the skin, and ulcerated in the center. It projected into the palatine vault and the nose. It was removed by a resection of the maxillary bone, exposing a large cavity covered with green nodules, extending to the meninges. Owing to this the operation was not completed. The results were not known, as the patient disappeared.

In Bramwell's case the most remarkable feature was an eruption, beginning on the chest and spreading all over the body, consisting of flattened elevations from the size of a pinhead to that of a sixpence, often confluent. They were superficial, painless, and for the most part of a slaty gray color, sometimes yellow in the center. The gums were enormously swollen, firm and dark purple in color. The conjunctiva was infiltrated with a translucent, fleshy-colored growth. The eruption on the skin in time became yellow, yellowish-green, or distinctly green.

In Hitschmann's case there was also the combination of lesions in the mouth and skin. A man, aged twenty-six years, had a swelling of the cervical glands and enlarged spleen. The glands suppurated spontaneously, and showed no tendency to healing; the resulting ulcer had blue edges. The right tonsil was ulcerated. A bit removed from the margin showed a lymphosarcomatous structure. In two months after the beginning of the observation the tonsils and the mucosa of the pharynx, nasopharynx, fauces, and nares were greatly swollen. The blood was then normal. In two months more the skin became darker, of a pale-brown color, most intense over the cheeks and breast. A disseminated eruption appeared, with slightly elevated lesions, the size of lentils, of a grayish-green ("reseda") color, unchanged by pressure. The connective tissue of the eyelids became a pronounced grayish-green color; the scleræ also had a greenish tint. Other mucous membranes were pale-red, transparent, and finely nodular. Infiltrations formed in the soft palate, the base of the tongue, and upper part of the larynx. The tonsils were replaced by nodular tumors. There were large, hard, and almost immobile packets of lymphatic glands in the neck, axillæ, and inguinal regions. The bones were tender. There was remittent fever. The blood then showed relatively many large lymphocytes, later considerable lymphemia, with anemia, poikilocytes, polychromatophilia, and normoblasts. The patient died six months after admission. Grass-green new-growths were found in the tonsils, the mucosa of the gums, palate, nose, pharynx, larynx, and bronchi; in the cervical and mediastinal glands. The diagnosis of chloroma was made during life (1903), from the lesions in the skin.

In Schmidt's case there was a distinct green discoloration in the skin of the face and also on the body, but on the latter there were recent hemorrhages. There were also subcutaneous nodules.

The foregoing cases are interesting on account of the new features they add to the clinical picture of chloroma. It would increase too much the length of this paper to speak of the skin alterations in leucemia and allied conditions. Those especially interested will find a useful compilation in the monograph of Někám,[1] while other interesting data are contained in the articles of G. Dieballa,[2] F. Pinkus,[3] and C. Audrey.[4]

In Gümbel's case there was transverse myelitis, due to pressure of the chloromatous masses upon the cord, and in Rosenblath's first case there was degeneration of the right posterior column of the cord in the lumbar and dorsal regions from pressure.

Sciatica was a marked symptom in the cases of Rosenblath, Harris and Moore, and Klein and Steinhaus.

In Trevithick's case tumors were discovered

1 Ueber die leukæmischen Erkrankungen der Haut. Ergänzungsheft, Monatshefte f. prakt. Dermatologie, Hamburg and Leipzig, 1899.

2 Ueber einen mit Lymphocytose einhergehenden Fall von Sarkoma mult. cutis, Wiener klin. Wochenschrift, 1897, p. 523.

3 Ueber die Hautveränderungen bei lymphatischer Leukämie und bei Pseudoleukämie, Archiv f. Dermat. u. Syphilis, Bd. I. pp. 37, 177; with extensive bibliography.

4 Journal des maladies cutanées et syphilitiques, 1902.

in the breasts, in a girl aged thirteen years. The tumors became larger. "The left breast was composed of two very hard, globular tumors, each about the size of a hen's egg, freely movable over the deep parts, but adherent to the skin. The opposite breast was represented by three similar tumors." The mammary tumors "showed through the skin as being of a dark-blue color." The patient also presented the common features of pallor, proptosis, swelling in the temporal regions, subcutaneous hemorrhages, and nodules on the sternum and ribs. Post-mortem, growths of light-green color were found connected with various bones, in lymphatic glands, kidneys, liver, ovaries, pancreas, thyroid, dura mater, and in the choroid plexus of the lateral ventricles.

Dunlop's case was the first one in which a diagnosis was made during life. The patient, a boy aged five years, was fairly healthy up to a year before admission. For fully a year patches of ecchymosis were frequently noticed under the skin. In May, 1901, pallor was obvious, and for some months before that it was observed that any scratches on the body tended to suppurate. After a wetting and chill the boy became easily tired, called out in his sleep, and snored. His appetite was poor, and he grew steadily paler and more emaciated. In August his eyes became prominent, with dilated veins on the lids. In September he became deaf. On admission, September 30, 1901, he looked very ill, and was pale, with a waxy, yellow tint. There was a profuse petechial eruption everywhere except on the face, with two larger hemorrhages over the dorsal, spinal column, and the right knee, with a yellow discoloration, as of an old hemorrhage, on the right shin. Both eyeballs protruded, but the lids could be closed. There were a few enlarged glands under the jaw, on both sides, and in the posterior triangles of the neck and the groins. The heart dulness was enlarged; there were loud hemic bruits; pulse 110, irregular in time and force. The liver and spleen were not enlarged. The urine contained a small amount of albumin. The blood: hemoglobin, 32 per cent.; red blood corpuscles, 1,800,000; leucocytes, 24,500. Lymphocytes, large preponderating, 73 per cent.; polymorphonuclears, 17 per cent.; myelocytes, 5 per cent; unclassified, resembling myelocytes, 5 per cent. A few nucleated reds.

The eyes became more prominent, the deafness worse. In the mouth a hard, purple swelling appeared on the hard palate, extending nearly the whole anteroposterior extent from the teeth nearly to the median line, with discoloration to the median line. A similar smaller swelling appeared on the lower jaw on the right side, external to the teeth. In October a smooth, rounded swelling appeared in each temporal region, reaching behind to about half an inch in front of the pinna, and in front of the outer edge of the orbit, and apparently continuing into the orbit. On October 22 the diagnosis of chloroma was made. Photophobia came on. The upper eyelids became infiltrated, especially in their outer halves, with firm, smooth swellings which seemed to proceed from under the roof of the orbit in the region of the lacrimal gland, and extend to the margin of the tarsal cartilage. In the left lower eyelid there was a tumor extending from canthus to canthus, appearing to come from under the lower margin of the orbit. The retinal veins were tortuous and moderately distended. In the right eye there was a minute extravasation of blood near the disk, and exudation into the disk and retina in both eyes. The leucocytes increased to 68,000 by November 2. A pale, greenish-yellow tumor of jelly-like consistence made its appearance at the inner canthus of the right eye, and gradually advanced over the eyeball, covering its lower half. There was a smaller similar tumor in the left eye. Frontal pain became intense; the temperature rose to 101° F., the pulse to 140. The temporal tumors seemed to become smaller. Marked optic neuritis, with linear hemorrhages, developed in the right eye, still more marked optic neuritis in the left eye. By November 12 the tumors on the eyes covered both eyeballs. The corneæ were apparently destroyed. The temporal tumors were smaller. Leucocytes, 107,000; red blood corpuscles, 815,000; hemoglobin, 12 per cent. On November 15 the eyeballs were less prominent, leucocytes 123,000, waxy pallor of face and engorgement of veins striking, sordes on lips and teeth. After coffee-ground vomiting the boy died on November 16.

The cases of chloroma with tumors of the orbit have close clinical relations with other orbital tumors, and often result in sending the patient to an ophthalmologist. But the orbital tumors do not suffice to make the diagnosis of chloroma. Besides leucemia without chloroma, lymphosarcoma, and other formations often affect the orbits, causing exophthalmus in some cases. One of us (Dock) has had an opportunity of seeing a number of these cases clinically in the service of Prof. Fleming Carrow. The most interesting one is still under observation. Examination of an excised portion by Dr. Warthin, shows a lymphomatous structure. In addition to the orbital tumors there are growths in various parts of the body, including the roof of the mouth. The leucocytes number 10,000, 40 per cent. being lymphocytes, seven per cent. eosinophiles, but without the finer details of lymphatic leucemia. Risel has given a useful *résumé* of the literature of this part of the subject.

The cases without swellings in the orbit and temporal region are of special interest in connection with the one now reported. In Weinberger's case, a boy, aged fifteen years, had rigidity of the skin and weakness of the lower extremities, following scarlet fever. The cervical and inguinal lymph glands became enlarged; there were hemorrhages from the nose and gums and in the skin, hemorrhage from the right ear, deafness, splenic tumor, dilatation of the heart, and fever.

The urine contained Bence-Jones albumose. The growths involved the lymphatic tissue almost universally, the dura and serous membranes, the liver and kidneys, and the periosteum of the vertebræ. The tumors penetrated the vertebral canal and compressed the cord.

In Sternberg's case, too, the skull was not involved, but all the superficial and deep lymphatics, especially those of the floor of the mouth, were affected. The patient died of intercurrent disease (putrid bronchitis as the result of the perforation of a softened anthracotic bronchial gland into the esophagus and bronchus), so that the case really presents an early stage of the disease and seems to bear out the author's belief of a primary focus in the soft palate and pharynx.

A marked tendency to deafness and other ear symptoms were shown by the later cases, as in the earlier ones. One of the most striking examples was shown by the patient of Koerner. A boy, aged six years, became deaf. He also had headache and double exophthalmus. Both abducent nerves were paralyzed, the cutaneous veins of the forehead distended; both temporal regions were swollen. There was choked disk. The tympanic membranes bulged; they were pale grayish-yellow. The left mastoid was tender, but not swollen. Considerable pus was evacuated from both tympanic cavities. The diagnosis was phlebitis and thrombosis of both cavernous sinuses. After a fresh puncture of the left tympanic membrane, with elevation of the temperature, a mastoid operation was performed. The patient collapsed, but revived, and the operation was finished without exposing the lateral sinus. Death occurred five weeks later, without rise of temperature, but with frequent pulse (144) and respiration (66), and with rigidity of the neck. Post-mortem, no phlebitis was found, but instead a marked chloromatous growth involving the sinuses, the base of the skull, and other parts. Koerner analyzed the ear conditions in all the (20) cases of chloroma available, with great thoroughness, and found ear symptoms in ten.

The literature of the ear complications in leucemia has grown considerably since I referred to it in my former paper. For recent cases see Kast,[1] Kümmel,[2] Schwabach.[3]

Out of the protean symptoms of chloroma cases we can separate three sets of conditions: the mechanical results of the green growths, causing many symptoms, both objective and subjective, (exophthalmus, visible tumors, pain, deafness, etc.); the toxic symptoms, as weakness, fever, emaciation; and the blood symptoms, such as pallor, hemorrhages, and alterations of the blood itself.

The latter requires more particular consideration, and more especially so because of the effort I made in my previous article to show a relation between chloroma and leucemia. I need only allude to the resemblance of many of the symptoms of chloroma to those of leucemia, especially of acute leucemia. The condition of the blood, however, is the criterion of the leucemia change, and its condition in chloroma cases requires more detailed examination.

The Condition of the Blood. Ever since Recklinghausen assigned chloroma to the leucemic group of diseases the blood has been the most important single clinical feature, but owing to the imperfect application of blood examinations in general, and failure to appreciate the nature of cases during life, the blood has not yet received as much attention in chloroma as it deserves. In five of the present series of cases the blood was not examined (Lang, Koerner, Paviot and Gallois,[1] Harris and Moore, Hichens). In two it was not fully examined, or, at all events, not fully reported. In one of these—Schmidt—it is said the blood showed simple anemia; in the other (Paviot and Fayolle) there was said to have been leucocythemia of one to three or four. This latter statement is not as definite as that of Ayres, who described leucocytosis in his case without increase of "small lymphocytes and those white cells characteristic of splenic and myelogenic leucemia." More prolonged examinations might have modified the descriptions in both cases. In Türk's case there was leucopenia with severe anemia. In the other thirteen cases the conditions were more characteristic of leucemia, though in one the leucocytes were not increased. This was the case of Bramwell, in which there were 8,000 leucocytes per c.mm., with 95 per cent. of lymphocytes, "chiefly large lymphocytes, with large nuclei and clear, non-granular protoplasm. During the month the patient remained in the hospital the blood condition remained practically the same." As Bramwell remarks, "the mere fact that the leucocytes were not increased did not exclude leucemia." In ten cases, according to the reporters, the blood resembled that of acute leucemia or acute lymphocythemia.

Examining these cases in detail we find in Rosenblath's first case: red blood corpuscles, 1,000,000; leucocytes, 300,000. "The small mononuclear lymphocytes appear in small numbers, and the polymorphonuclear neutrophiles are scanty in proportion to mononuclear forms of various sizes, the smallest of which only slightly exceed the red corpuscles, the largest reach a considerable size. The protoplasm is usually reduced to a narrow ring, the outer layer of which often stains deeply with methylene blue. Only in the large forms has the protoplasm a greater extent. The nucleus stains rather faintly, shows usually a granular or filamentous network, is round or oval, usually simple, but sometimes double. There is moderate poikilocytosis, only an occasional nucleated red corpuscle." In

1 Deutsche med. Wochenschrift, 1894, Beilage 27, p. 187.
2 Ear Disease in Leucemia, German Otological Society, 1896; Archives of Otology, vol. xxvi, p. 115.
3 Ueber Erkrankung des Gehörorg. bei Leukämie, Zeitschrift f. Ohrenheilkunde, Bd. xxxi, p. 103.

1 Paviot and Gallois are of course in error when they intimate that the blood had not been examined in any of the cases before their own.

Rosenblath's second case the red corpuscles varied from 3,700,000 to 2,300,000, the leucocytes, 40,000 to 58,000; later to 37,000. There was distinct poikilocytosis, a nucleated red cell, usually a normoblast, in almost every preparation. The leucocytes resembled those in the first case. The polymorphonuclear neutrophiles were considerable at first, but later were reduced to one-quarter or one-fifth of all leucocytes. Small lymphocytes were scanty, eosinophiles very rare. Sutherland's case (observed in 1893) had 2,200,000 red corpuscles. The leucocytes a few hours before death were "180 to a field. There was a great increase of lymphocytes, varying in size." In Stevens' case the blood count was: red corpuscles, 766,000; leucocytes, 491,600; hemoglobin, 15 per cent.; small lymphocytes, 94.6; large lymphocytes, 1.4; polynuclears, 2.7; eosinophiles, 1.3. In Gümbel's case the condition of the blood during life is not reported. Post mortem, the red and white corpuscles after sedimentation were about equal. "The great majority of the leucocytes belong to the group of large lymphocytes (Ehrlich); the rest are small lymphocytes. There are two kinds of the former. In one, two or three times as large as a red corpuscle, there is a large nucleus and, as a rule, little non-granular protoplasm. The nucleus is usually vesicular, only the nuclear membrane and chromatin network stain intensely, but some forms occur in which the whole nucleus takes blue intensely. The nucleus is usually oval and excentric, but not rarely is indented, so that it has a saddlebag form. Less frequent are cells of the same size, but with a pale, indistinctly outlined nucleus, usually resembling a shadow, and often not possible to recognize. This is the form represented by Dock as A. Fig. B. Polymorphonuclear cells are rare, also eosinophiles, and these have nuclei like those of the lymphocytes described." Normoblasts, megaloblasts, and Charcot's crystals were not found in the blood.

I have not been able to find the full report of the blood in Sternberg's case, which was to have been published in detail by Obermayer. In another place[1] Sternberg mentions it as giving the picture of acute (large celled) lymphatic leucemia. In Weinberger's case the red corpuscles ranged from 4,500,000 to 3,200,000; leucocytes, 13,000 to 72,000. In the beginning there were 86 per cent. of large lymphocytes, few polynuclears and eosinophiles, no mast-cells. With 72,000 leucocytes the large lymphocytes were still in the majority. "The blood was in all respects like that of acute leucemia. In Trevithick's case there was extreme anemia, but no count was made. "The blood was first examined three weeks before death. There was then great increase of white cells. . . . On comparing the films made at that time with those prepared shortly before death it was evident that the number of white cells in the blood increased very rapidly. The change, in fact, resolved itself into an enormously great and rapid increase of mononuclear cells. Among this crowd of mononuclear cells, which in the later stages became approximately equal in number to that of the hemocytes, there appeared a considerable number of bodies which, after careful examination, I believed to be degenerating nuclei derived presumably from defunct cells. These bodies varied in size and shape, but in some cases their dimensions were surprisingly large, and I saw several that possessed a diameter equal to six times that of the neighboring red blood corpuscles." These bodies resembled some in a preparation from a case of acute leucemia. "Some of the intact mononuclear cells found in the blood attain exceedingly large dimensions. Great variation in size is noticeable, and they seem to be distributed in groups."

The illustration given in Trevithick's article shows many cells such as occur in our present case of chloroma, as well as in many cases of acute lymphocythemia, while the degenerated cells so clearly described by the author are such as occur in leucemias of various kinds, and were particularly marked in a case of chronic small-celled leucemia reported by Dock.[1] In Hitschmann's case the blood, late in the disease, contained "relatively many large lymphocytes, later considerable lymphemia, with anemia, poikilocytosis, polychromatophilia, and normoblasts." In our own case, while the blood shows some differences as compared with many cases of acute leucemia hitherto reported, it has probably many counterparts in the latter disease. In its eosinophile cells and myelocytes it differs from Dock's (1893) case and forms a transition from many of the other cases to those of Dunlop and Klein and Steinhaus. In Dunlop's case the blood at first showed: hemoglobin, 32 per cent.; red blood corpuscles, 1,800,000; leucocytes, 24,500. The differential count was: lymphocytes, large predominating, 73 per cent.; polymorphonuclear, 17 per cent.; myelocytes, 5 per cent.; unclassified and transitional forms resembling myelocytes, 5 per cent.; a few uncleated red cells. The red cells fell in six weeks to 815,000; hemoglobin, 12 per cent.; the leucocytes rose in the same time to 123,000. Dr. J. S. Fowler has described the blood in this case,[2] and has given a somewhat different count. For example: October 5, leucocytes, 25,000; small lymphocytes, 15; large, 48.5; polynuclear, 31.5; eosinophiles, few; myelocytes, 5. November 11, leucocytes, 64,000 (Dunlop gives the number November 12, as 107,000); small lymphocytes, 15.5; large lymphocytes, 53.5; polynuclear, 16; myelocytes, 15; no eosinophiles in the last two counts two weeks apart. Divergences in leucocyte counts in different observers are, of course, very common, depending partly on staining technic, partly on different conceptions of certain cells, but the discrepancy in the

1 Verhandlungen des Deutschen patholog. Gesellschaft, 6 Tagung, 1903, pp. 30-33.

1 Moscow International Medical Congress, University Medical Magazine, March, 1898.

2 International Clinics, 1903, series 13, vol. iii, p. 225.

polynuclear counts in this case is hard to understand. Nevertheless, we can accept the reports as showing a still more distinct transition toward myelocythemia than was present in our own case.

A still greater departure from the lymphocythemic type was present in the case of Klein and Steinhaus. Here the leucocytes rose from 20,000 to 41,000. Lymphocytes varied from 40 per cent. small, 10 per cent. large, to 19 per cent. small, 47 per cent. large. Myelocytes varied between 16 and 32 per cent. The report does not describe the rest of the cells, but it is obvious that the case was not an ordinary one of mixed-celled leucemia, as the authors seem to intimate. A more distinct example of the latter occurred in a case of Türk's,[1] which I have excluded from the list of chloroma cases for the same reasons that made me exclude some other probable cases reported under the title of leucemia. In this case, a man, aged thirty-eight years, had hemorrhages from the gums, weakness, anemia, ecchymosis in the retina, enlarged spleen, and pain in the sternum. The blood examination showed: red corpuscles, 1,600,000; leucocytes, 42,000; hemoglobin, 19. Differential count: 14.75 lymphocytes, 32 polynuclear, 47 myelocytes, a few eosinophile myelocytes, no mast-cells. In seven days the blood fell to red corpuscles, 500,000; leucocytes, 58,000; hemoglobin + 10; lymphocytes, 18; polynuclears, 37; myelocytes, 37; 1 normoblast. Post mortem, there was diffuse grass-green infiltration in the bone-marrow of the vertebræ, ribs, sternum, and proximal ends of both femurs. The upper part of one humerus had reddish-gray marrow, the other long bones fatty marrow. The retroperitoneal glands were green. Here we miss the full picture of mixed-celled leucemia, especially eosinophile and mast-cells, normoblasts, and megaloblasts. But the case has an important bearing on the question of the nature of chloroma that must be considered in another connection, and illustrates the diversity of blood pictures in leucemia, which is suggested in the relatively small number of cases of chloroma. Investigations by many observers are putting it beyond question that besides the two main groups of leucemia there are many varieties, as I have held for many years. The exhaustive and authoritative article of Dr. A. O. J. Kelly, presented a year ago, makes unnecessary a repetition of the evidences now at hand.

While it is obvious that in many cases of chloroma the blood resembles that of acute leucemia, and while the symptoms are often acute, we need more exact observations. The blood examinations, as a rule, were not made early enough to determine this fact—a difficulty that occurs sometimes in non-chloromatous "acute" leucemia. There are a few interesting observations already available in chloroma. In Rosenblath's first case there were 300,000 leucocytes at the first examination, three and one-half months after the beginning of symptoms. In the second case of the same author the blood was first examined eleven days after the first symptoms, and contained 40,000 leucocytes per c.mm., increasing in eight days to 58,000, but in two months the number was lower—37,000. The patient died ten days later. In Weinberger's case the leucocytes rose from 20,000 to 72,000 in two days. In Dunlop's case they increased from 24,500 to 123,000 in six weeks. In this case petechiæ occurred early, suggesting an alteration of the blood. In our own case the symptoms indicate an anemia very early. It is impossible to tell what changes the blood passed through, but the extreme oligemia suggests grave failure of the red blood-forming organs, which might have been due to the overgrowth of the normal tissue by the morbid process, which sooner or later produced the excess of leucocytes in the peripheral blood. There was no distinct change in the number of leucocytes under observation, and it is, of course, as possible that leucocytes were more numerous at some previous period as that they rose just before the end.

From the data now available the relationship of chloroma to leucemia seems settled. That the full picture of leucemia does not always develop in all cases is to be expected. That qualitative changes will occur in the blood, and that quantitative changes appear in regard to certain common cell forms, there can be little doubt. But assigning chloroma to leucemia of course leaves many problems unsettled. One of the first questions that arises in this connection is with reference to lymphocytosis in so-called lymphosarcoma and other diseases not yet positively identified with leucemia, but with many indications of relationship. This, as well as some other questions, can only be determined by the discovery of the etiologic factors, though careful clinical observation and study of the blood may materially further the subject before that consummation has been reached.

Two other questions raised by chloroma require some attention: the nature of the color and the histologic position of the new growth.

The Color of Chloroma.—The later cases of chloroma have not advanced our knowledge of the nature and cause of the green color. No extensive examination seems to have been made, probably because the most obvious explanations had been tried and been found wanting in the earlier cases, where the ordinary chemical and physical methods were applied for the detection of possible color principles. There is apparently a difference in behavior of the color under comparatively simple conditions. Most observers state that the color fades quickly on exposure to the air (or light), as during the autopsy; but Dr. Warthin noticed an increase in the depth of the color in our last case, possibly from drying. Almost all say the color fades in various preserving solutions, and does not go into solution in the fluids. Risel, for example, found that the color was not preserved in Kaiserling's method, in

1 Wiener klin. Wochenschrift, 1903, p. 333.

which the greenish color of tuberculous foci in the same specimens retained their peculiar tint. Alt found that the tissues retained their dark grass-green color in formol solution, and the fluid itself was of a dirty-green color and looked fatty. Allowing the fluid to evaporate, large droplets of dark-green, oily substance remained, with many octahedric crystals, like calcium oxalate. The account suggests bile coloring matter, but no mention of jaundice is made.

That the color is not a post mortem phenomenon appears from some observations during life in the older series, as well as those of Lang, Bramwell, and Hitschmann in the present one. On the other hand, an origin from broken-down blood pigment is suggested by certain observations. Risel found hemosiderin granules in the tumors, and referred these to breaking down of red blood corpuscles, but he ascribed the green color not to these granules, but to some other substance of hematogenous origin. He compared the process to the "green granular pigment" found in the dog's placenta, explained by Lieberkühn and Strahl as originating in extravasated blood. Lubarsch found the color a deeper green along the sinuses in his case—"in fact, a diffuse green coloration of the sinus walls was observed in the vicinity of the chloromatous tissue." Of course this does not prove that the blood made the green color, any more than that a pigment of some other origin was deposited in those parts. Gümbel[1] quotes some experiments of H. Rücker on blood pigments, to which he might have added some other suggestive experiments, cited in the same thesis, showing the possibility of deriving green coloring from blood. This, of course, follows from the changes in subcutaneous hemorrhages, and the observations on such processes by Langhans and others.

Risel, Lubarsch, and Weinberger made it practically certain the color is not of bacterial origin, while Lubarsch was unable to find pigment granules in either sections or fresh preparations. Sternberg's results with Sudan III, showing fat droplets in the lymphocytes, does not prove that the color is due to an ordinary fat.

Paviot and Gallois made some tests of chloroma tissue with guaiac, which led them to the conclusion that chloroma contains an oxidizing diastase. They also found, however, that a similar reaction occurred with other tissues of rapid growth, confirming the conclusion of Klein that the reaction depends on the relative youth of the cells. The suggestion of Schmidt that the color is due to the shape of the cells has not found any confirmation.

Bramwell raised the question whether the color is due to the same causes in all cases of chloroma. He considered it possible that it might be due to different causes in different cases, and that it might even be due to different pathological conditions. He also thought there might be cases of chloroma without green tumors and no green lesions; "that the green discolorations, though they had hitherto been considered to be essential and characteristic features of the disease, might, in some undoubted cases of chloroma, be absent." These suggestions are not as paradoxical as they seem. They show the danger of making such a feature as color the basis of classification, especially when pertinent cases are few and the color itself is so elusive and so difficult to analyze as in chloroma. It is true that in order to deserve the term chloroma there should be a green color, but if the green color is associated with a definite structure it might be possible to make the diagnosis even if the color were absent, either naturally or as the result of preserving methods. To take a clinical example, not every chlorotic has a greenish tint, as Virchow pointed out long ago. In a number of recent cases there were new growths of ordinary color besides the green ones, as there were in some of the old ones (*e.g.*, Dock, 1893). In Schmidt's case some lymph glands showing the structure of malignant lymphoma were removed eight months before death, and showed no trace of green color.

In Körner's case some of the tumors were not green, though they had the same structure as the green ones. This was also true in Weinberger's case, and in a case of acute leucemia Bramwell found a few green lymph glands. It is therefore certain that the green color is not present in all the lesions in chloroma, and possibly that it is not present in the beginning. That the color occurs in other processes appears from the cases of Klein and Steinhaus and Türk, the earlier cases of leucemia with green lesions being left out of consideration because of a certain imperfection in the blood examinations. But the various observations of pure lymphocythemic chloroma and the two cases just mentioned, make it certain that whatever the green color is due to, it is not confined to any one particular histologic structure.

It is interesting to note that in Trevithick's case the heart clot was green, but less so than the new growths. In Gümbel's case the sedimented leucocytes were green, and there were greenish clots in the heart, but in many other cases, including Rosenblath's with 300,000 leucocytes, green clots are not mentioned.

VIEWS OF AUTHORS ON THE CLASSIFICATION OF CHLOROMA.

Most authors agree upon the main histological details of chloroma. There are certain differences regarding the size of the cells that make up the growths, some describing them as small, others large, others even as very large, but this difference is probably chiefly a matter of standards. On the other hand the interpretation of the structure is not always the same. It will be interesting to pass some of the explanations in review.

Lang made a variation when he described

[1] Zur Kenntnis des Hämatoporphyrin und seiner Derivate. Inaug. Dissert., Strassburg, 1901.

the growth in his case as a myxosarcoma, or chloromyxosarcoma. I see no reason, however, from excluding it from the statistics of chloroma, as I did in the case of Bock in the earlier series.

Schmidt thought the process, like that in leucemia and pseudoleucemia, primarily affected the lymphatic apparatus and the closely related bone-marrow. He thought the disease was without metastases.

Lubarsch thought the tumors so much like lymphoma and lymphosarcoma, histologically, that but for their green color the possibility of anything but lymphoma would never have been entertained. But he would separate chloroma, as well as lymphosarcoma and tumors of that kind, which seem to have a toxic or infectious origin, from sarcoma and other autogenous tumors. "The former are merely a manifestation of a general diseased condition of the organism. Though they may develop in large numbers in the body, each tumor must be looked upon as a primary condition and not as a metastatic formation depending on the dissemination of some primary autogenous growth; while they usually have a predilection for lymphoid tissue, they have been found in other parts of the body." Lubarsch, like most recent authors, agrees that Dock was right in emphasizing the differences between ordinary periosteal sarcoma and chloroma.

Paltauf,[1] who discussed the subject in 1897, placed chloroma, with leucemia, pseudoleucemia, and myeloma, among the lymphomata or lymphosarcomata in the sense of Kundrat, and more definitely under lymphosarcoma as an appendix, and he suggested that it should not be spoken of as a sacroma. Since the view of Kundrat has strongly influenced many in their opinions, and yet has not been universally accepted, it may be well to explain that author's conception of lymphosarcoma.[2] According to Kundrat, lymphosarcoma arises from lymph glands or from the follicles of a mucous membrane, always from a group of follicles; and though it may long remain localized there, it in time passes into other lymph glands or follicles, breaking through the capsule and infiltrating the surrounding tissue. The infiltration proceeds more or less rapidly according to the tissue affected, most rapidly in loose tissue, under the surface, on and in mucous membranes and serous membranes, so that in hollow organs large areas are involved, but usually not leading to stricture, rather to dilatation. Distant locations are involved, somewhat resembling metastasis in other tumors, but never causing nodules, rather infiltrations. One reason why Kundrat rejected the idea of metastasis is that the usual seats of metastatic cancers and sarcomata are not affected,—that is, the internal organs—but rather the intestinal canal. Metastases by way of the blood circulation rarely occur, also ruptures into bloodvessels; the latter are more likely to be compressed and obstructed. However, secondary thrombi occur. Unlike leucemia and pseudoleucemia, lymphosarcoma does not have diffuse infiltrations of the liver and spleen. These organs are more likely to be small, in consequence of marasmus. The bone-marrow is also not affected.

1 Ergebnisse der allg. Path. und path. Anat., III Jahrg., 1896.
2 Ueber Lymphosarkomatosis, Wiener klin. Wochenschrift, 1893, No. 13.

(To be Continued.)

MEDICAL PROGRESS.

PHYSIOLOGY.

The Effect of Formaldehyde and Calcium Chloride on the Hemolytic Power of Serum.—Since it has been shown that the hemolytic power of foreign serum may be destroyed or attenuated in vitro by the addition of small quantities of formaldehyde, calcium chloride and other substances, C. C. GUTHRIE (*Am. Jour. Physiol.*, September 1, 1904) thought it of interest to investigate the effect of the intravenous injection of formaldehyde and calcium chloride. Certain preliminary experiments were performed with the following results: Slight variations in both the rate of hemolytic activity, and the total hemolytic power of serum of different animals of the same species (dogs), for washed rabbit's corpuscles were observed. Age, sex, weight, nutrition, breed and pregnancy appeared to have but little or no influence in the hemolytic action of the serum. Hemorrhage, asphyxia and excess of anesthetic (ether) have little or no effect in the hemolytic action of the serum; nor has the subjecting of dog's serum to a temperature of 5° to 10° C. for seventeen hours and then thawing. The injection of formaldehyde causes a moderate though decided decrease in the hemolytic power of the serum. The decrease is most marked in the serum from blood drawn immediately after the injection is finished, the hemolytic power of the serum gradually approaching normal after the initial inhibition, which is abrupt. Calcium chloride produces the same effect, except that the inhibition of hemolytic power is greater for calcium chloride in the proportions injected for formaldehyde.

The Reducing Action of the Animal Organism under the Influence of Cold.—The application of intravital staining methods to the study of this problem was made by C. A. HERTER (*Am. Jour. Physiol.*, September 1, 1904). If a living rabbit is infused with a solution of methylene blue, one notes during life and after death a variability in the reducing power of the different kinds of cells. The lungs, liver, suprarenals and gray matter of the central nervous system reduce methylene blue to its colorless leuco-base during life. The muscles, spleen, kidneys, and connective tissues reduce less actively. After a rabbit has been cooled by means of cold wet cloths, the intravenous infusions were made into the jugular vein. An inspection of the pectoral muscles showed that they were blue in color. The muscles of the control animal were likewise blued, but the coloration was less than in the cold animal. After the close of the infusion, the blue present in the muscles of the normal animal is gradually reduced to leuco-methylene blue, whereas the reduction is distinctly slower than in the case of the cooled rabbit. On exposure to the air or after treatment with oxidizing agents there is a return of color in the muscles of the normal animals, which indicates that the differences in color are due chiefly, if not wholly, to differences in the power of reduc-

tion, and not largely to the transportation of the dye. Cold causes a marked lessening in the reducing activity of the gray substance of the brain, cerebellum and other central nervous organs. The author emphasizes the following conclusion: A considerable fall in body temperature is attended by a diminished reduction of methylene blue to leuco-methylene blue, and this result is particularly striking and unequivocal in the case of the muscles (including the heart and diaphragm) and the gray substance of the central nervous system.

The Elimination of Endogenous Uric Acid.—The uric acid eliminated by the organism has two sources: (1) food containing purin bodies, such as meat, and (2) the disintegrating cells of the body. The uric acid originating in the former is known as exogenous, while that originating in the latter is termed endogenous uric acid. E. W. ROCKWOOD (*Am. Jour. Physiol.*, September 1, 1904) conducted a series of experiments in order to verify the conclusions of Burian and Schur, namely, that the endogenous output is variable for different individuals, but constant in quantity for the same person. He found this to be the case; there is a marked individual factor in the output of uric acid on a purin-free diet. This varied far less than either the elimination of nitrogen or of phosphoric acid. The relative individual constancy is the more striking in view of the marked difference in the composition of the diets at different periods. The importance of the individual factor in contrast with the dietetic factor is seen in the comparison between the output of different persons living on precisely the same diet. A considerable increase in bodily exercise does not affect the uric acid output noticeably. In children, in proportion to body weight, the amount of endogenous uric acid eliminated is about the same as in adults.

Action of Depressor Nerve.—Since the opinions as to the real function of the depressor nerve are still divided, C. HIRSCH and E. STADLER (*Deutsch. Arch. f. klin. Med.*, Vol. 81, Nos. 3 and 4) have attempted to solve the problem with a number of interesting experiments. When the nerves were divided a short increase in pressure invariably followed, but this is sometimes preceded by a short stage of lowered pressure, probably due to initial irritation of the nerve. The results are no different if the animal was first curarized, or if the aortic valves were so injured as to bring about an insufficiency or where an artificial stenosis of the aorta was created. Increased viscosity of the blood or artificial plethora were without any influence. It is probable that the depressor nerve exercises its function merely upon the first part of the aorta, preserving a certain amount of tonic spasm, so as to prevent overdilatation with increased blood pressure.

The Fate of Strychnine in the Rabbit's Intestine.—It was recently reported by Salant that the contents of the cecum of rabbits are capable of destroying strychnine. R. W. HATCHER (*Am. Jour. Physiol.*, October 1, 1904), finds that this is not the case; that strychnine, after having been mixed with the cecal contents, may still be detected, though with difficulty, and that this difficulty is to be ascribed to the formation of compounds of strychnine with organic constituents of the intestinal contents.

The Physical Relation of Chloroform to Blood.—Conclusions which are substantially identical with that arrived at by Moore and Roaf, are drawn by A. D. WALLER (*Proc. Royal Soc.*, July 19, 1904) from his recent researches on the above subject. They are that the absorption of chloroform vapor is greater by blood than by saline, and that blood acts as a special carrier of chloroform to the tissues just as it acts as oxygen carrier. The combination which certainly takes place between chloroform and protoplasm may possibly be accounted for on the lipoid theory (the union of chloroform and "lipoids"). The question whether chloroform can combine with all protoplasm indifferently or with its fatty constituents (lecithin, cholesterin) more particularly, is a subsidiary issue, in respect of which the above observations contain no decisive evidence. On the one hand, is to be seen the fact that all protoplasm is subject to the influence of chloroform, and on the other hand the fact that all protoplasm is associated with fatty constituents of which lecithin is the most universal representative. Lecithin is widely distributed in vegetable as well as in animal protoplasm; it is present in blood serum, which, as shown by Moore and Roaf, has a solvent power toward chloroform not far short of that possessed by blood.

The Function of the Cecum and Appendix.—The cecal appendages do not exist in fish, batrachians and reptiles, the small and large intestine forming a continuous tube. WILLIAM MACEWEN, in a voluminous paper (*Lancet*, October 8, 1904) states that the digestion in carnivorous birds and animals takes place principally in the stomach and the small intestine. The ceca being rudimentary or absent, while in the herbivora, the cecum is enormously developed and in the solipeds, it is the chief digestive organ, the stomach occupying a secondary place. Man, if not an omniverous animal, is at least a carnivorous and herbivorous one. Therefore, one would expect him to possess, as he does, not only a stomach and small intestines, but also a cecum; the cecum being concerned largely with the digestion of vegetable food, and as this type of foodstuff consumed by man is of the most tender variety the cecum is of only moderate size. It is an interesting fact that in at least one patient the loss by operation of the cecum, iliocolic valve and a large portion of the ascending colon was necessitated by infection of the part, an obstinate diarrhea, which occurred without any apparent cause, seemed to have a very definite relation to the excision. As to the nervous mechanism of the appendix, although it is regarded as a mere diverticulum of the cecum, nevertheles both its nervous and vascular supply is more related to that of the small intestine than of the colon. Inasmuch as the circular muscles of the cecum are continuous with those of the appendix and the longitudinal cecal bands end on the appendix, it is not difficult to understand that the nervous mechanism of the appendix may initiate the larger movements of the cecum by first inducing movements in the appendix. Undoubtedly the appendix is subject to the same cerebral government, so far as its motions go as the small intestine. In the cecum and appendix, the glands of Lieberkühn are very numerous and well developed. In fact, they are packed so closely together that no room is left for absorption purposes. This in itself seems to point to the cecum and appendix, having a more purely digestive than an absorbing function. The succus entericus in the small intestines is of great importance in furthering digestion, it being well known that the proteolytic function of the pancreas is particularly favored by it. Pawlow considers it to be a ferment of other ferments, which he names enterokinase. Succus entericus, however, is not the only agent at work in the disintegration of a cecal pabulum. Micro-organisms undoubtedly play a very important part in disin-

tegrating by their metabolic processes many substances which have resisted the action of body digestants. Bizzozero has shown that the cells of the appendix in healthy rabbits contain enormous numbers of degenerative micro-organisms. Apparently the cells of the solitary follicles of the appendix have a controlling action on these organisms, and it is not unlikely that one of the appendicular functions may be to maintain cultures of these organisms to perform their functions upon the cecal fluids. It is, therefore, not unnatural that the determining factors in causing appendicular inflammation are usually of a digestive type. Deaver states that appropriate inquiry will elicit a history of such disturbances in almost all cases. Indeed, it is not improbable, because of the close relation between the appendix and the cecum through the superior mesenteric plexus, that a vast number of so-called cases of indigestion, which are heedlessly attributed to gastric disturbance, are in truth purely reflex manifestations of disturbed cecal and appendicular digestive functions. The author concludes that the mode of life, its hurry and its hygienic improprieties, are in a large part he cause of appendicular disease.

PATHOLOGY AND BACTERIOLOGY.

Lesions Produced by Tetanus Toxin.—The experiments of R. ODIER (*Arch. de Méd. Expér.*, July, 1904) show that tetanine causes the degeneration and later the destruction of the motor end plates in the muscles. The axis cylinder of the nerves which convey the toxin are the seat of an anatomical degeneration proportional to the dose and the concentration of the toxin, as well as to the time which has elapsed since the introduction of the toxin into the organism.

Etiology of Macrocheilia.—For a long time it has been recognized that abnormal thickening of the lips can be brought about by two very different causes, viz., inflammatory reaction and the presence of neoplastic growth. DANIEL EISENDRATH (*Annals of Surgery*, September, 1904) states that the former cause is by far the more frequent. It is common in so-called scrofulous children, is very prone to relapse and is essentially of a chronic nature. It is associated with immense hypertrophy of the mucous gland, as well as of an increase of all the tissues which constitute the lip. Lymphangiomata have usually been considered to represent the type of tumor most frequently found. In this respect hypertrophy of the lips due to this cause is almost identical with macroglossia. The author's case, which is probably the second one on record, the first having been operated upon by Fränkel, has the following history: The patient was a young man, sixteen years of age, who suffered from a double ptosis as well as from a disfiguring thickening and protrusion of both lips. The anti-operative photograph presented shows the condition to have been extreme. His early history was negative. He was an only child and had always enjoyed good health. At the age of ten his parents began to notice a moderate thickening of the lips, which had continued uninterruptedly for six years. The physical examination of the parts showed that the skin covering the region was smooth. The lip was soft, not tender, and otherwise negative. Removal of as much of the tumor as possible was advocated, followed by a subsequent treatment with hot-water injections. The tumor was extremely vascular, and immediately on section a surprising number of little concretions, the size of a bird shot, streamed out of the wound. The author believed these little masses either to be small lipomata or simply normal fat. That this tentative diagnosis was erroneous became evident on microscopical examination. These tumors were seen to consist uniformly of glandular tissue precisely similar in type to that of the normal mucous gland of the lip.

Human Piroplasmosis.—The sporozoan parasite discovered by Donovan and classified by Laveran and Mesnil in the genus *Piroplasma*, is described, with an admirable colored illustration, and the history of the discovery of the parasite is given in a long article by C. DONOVAN (*Lancet*, September 10, 1904). He says that on June 17, 1903, he first found these organisms in splenic blood. In one year there were admitted to his wards seventy-two cases suffering from this disease, all of which were diagnosed by examination of blood from splenic punctures. Of this number, the death rate has been 30.55 per cent. The disease is exceedingly rare among Europeans, it being particularly prevalent in the dirtiest portion of the native quarter in the city of Madras. The sexes are equally amenable, and age is no bar to infection. Probably the reason that Europeans are so rarely infected is that they are usually well housed. The history of the discovery of the parasite was as follows: Donovan noticed that a great many cases passed through his wards which had many points in common with chronic malaria, and which, although registered as such, did not seem to the author to be true malaria on account of the absence from the peripheral blood of the usual parasite. In all these questionable cases the spleen was enlarged. Donovan believed that possibly the conditions might represent some hitherto unobserved stage in the malarial organism. With a view to determining this, he took smears of blood from the spleen post-mortem. He at once noted that the peculiar round and oval ring-like little bodies, which were characterized by two masses of chromatin situated on opposite poles, were different from anything ever before recognized as malarial hematozoa. He still believed, however, that he had discovered the long-sought-for resting-stage form of the malarial parasite. A splenic puncture during life proved that these curious bodies were not as Donovan had suspected they might be, post-mortem degenerations of splenic pus cells. It is most interesting to note that these piroplasms, when found in the peripheral blood, a matter of very rare occurrence, and only when the temperature ranges between 102° and 104° F., are of a very different form from that presented by the same parasite in the spleen. The number found in a single field will vary from one to thirty or more, although occasionally in well-marked cases even, great care has to be taken in finding the parasite. The number found, although varying with the amount of blood taken up in the syringe, does not appear to be in any wise dependent upon the severity of the disease nor upon the size of the spleen. Altogether Donovan has practised 110 punctures and has made this very interesting deduction from the series: One death unquestionably resulted from the simple operation. Puncture of the spleen of a fairly healthy man was made at 8 A.M. He seemed comfortable at three o'clock, when he was allowed to get up from bed. While going to get a drink of water he slipped and fell and was picked up dazed. Two hours later he died in extreme dyspnea. Post-mortem examination showed an extensive intraperitoneal hemorrhage. Calcium chloride has been ad-

minstered to all the cases since operated upon, and so far with apparent good results.

A New Color Reaction for Sugar.—A new test in which orcin is used is described by A. NEUMANN (*Berl. klin. Woch.*, October 10, 1904). He claims that this is not only a typical pentose reagent, but may also be used for the differentiation of other members of the group. The method is as follows: Ten drops of the watery solution to be tested are mixed with 5 c.c. of glacial acetic acid and a few drops of a five per cent. alcoholic solution of orcin. This mixture is brought to a boil, and then concentrated sulphuric acid added drop by drop. The test tube must be thoroughly shaken after every five to ten drops, otherwise the fluid will spurt from the tube. The acid is added until a distinct color appears after shaking. This depends on the concentration of the sugar solution, but even in weak solutions it becomes evident by the addition of from 40 to 50 drops. It is useless to add more than 50 drops, otherwise the orcin is decomposed and a yellow color appears. As soon as a distinct color appears, no further acid should be added, otherwise a mixture of colors results, or else the color becomes too deep for spectroscopic analysis. The fluid should be allowed to cool before determinations of color by the eye or the spectroscope are made. If the color is too deep, the addition of acetic acid will dilute the fluid without changing the color. The different varieties of sugar give the following colors: arabinose, violet red; xylose, when warm, a violet blue; when cold, blue; glycuronic acid, when warm, green; cold, greenish blue; glycose, brownish red; fructose, warm, brown; cold, yellowish brown. When the test is applied to diabetic urine, even in the presence of slight amounts of sugar, an intense brownish-red color appears, whereas in normal urine there results a pale brown and green tinge, which is probably due to the mixture of colors from traces of glycuronic acid and glycose.

Origin of Blood-Platelets.—By means of a special combination of eosin and methylene-blue, K. PRIESICH and P. HEIM (*Virchow's Archiv*, Vol. 178, No. 1) were able to detect in blood-platelets a ground substance, filled with red granules and a surrounding rim of protoplasm which stains like the red cells. The red cells and less often the large mononuclear leucocytes, contain blood-platelets inclosed in their protoplasm. There are, however, distinct differences in staining between these included elements and the nuclei of the red cells. The position in centric or eccentric and sometimes the various stages of extrusion may be observed. Various experiments made to determine the nature of the substance of which the platelets were made up, proved that this was chiefly nuclein. If two ligatures are applied to a large vessel and the stagnating blood be examined after a certain time, the bodies are not increased in number, hence they probably occur as such in the circulating blood and do not precipitate out when the blood is at rest, as has been stated. Great importance has been attributed to the fact that if sublimate is allowed to act upon blood, structures resembling platelets are formed in great number from the red cells. These are not, however, true platelets, for they can also be obtained from the blood of chickens, which never contains platelets. The above facts together with the observation that animals whose red cell are normally nucleated, do not possess platelets, makes it very probable, that the latter are merely the degenerated and extruded nuclei. When the bone-marrow of young animals was examined, many nucleated red cells were found but among these was a large number whose nuclei stained like the platelets normally do, so that the various transition stages between both could be well studied. Both red cells and platelets are destroyed in the spleen, for if this organ be examined, large conglomerations can generally be discovered. The platelets are not indispensable for the clotting of blood but, as they are degenerated structures, they are the first to show those chemical changes which are necessary for the production of clotting.

The Formation of Glycuronic Acid in Man.—The results of a series of analyses of the urine in a case of acute cocaine poisoning made by J. WOHLGEMUTH (*Berl. klin. Woch.*, October 10, 1904) seem to explain the appearance of this substance. The patient had swallowed, by mistake, 0.75 gms. of cocaine, and was soon in a condition of extreme tachycardia and dyspnea. A gradual recovery took place in about two weeks. It was found that large quantities of phenoglycuronic acid were excreted, because as a result of the cocaine poisoning, the powers of oxidation were diminished and the body was unable to oxidize the sugar as it would have done normally, as well as the glycuronic acid due to the presence of the cocaine and the camphor which had been administered as a stimulant. A part of the sugar as well as the glycuronic acid entered the urine unchanged. The condition improved from day to day, as became evident from the gradual decrease of the sugar. As the glycuronic acid possesses a great affinity for the phenol, which under normal conditions enters into other compounds, it was excreted in the urine as phenolglycuronic acid. The case is interesting from the fact that it may throw some light on the hitherto obscure question of the primary origin of glycuronic acid.

Pulsating Gangrene of the Lung.—This is a morbid condition which has previously not been described. It is analogous to that rare affection pulsating empyema. JOHN LINDSAY STEVEN (*Lancet*, October 15, 1904) says that his case of pulsating gangrene is related to pulsating empyema only by the clinical fact of pulsation. There is a wide literature from prominent observers on this last disorder. West, McDonnell, Dieulafoy, Comby, and others having contributed to the subject. A case of pulsating empyema occurred in a woman thirty-seven years of age. On inspection of the anterior chest, moderate fulness was evident from the level of the second space downward, so that no intercostal spaces were visible; percussion was everywhere normal, and the respiratory murmur was also unchanged. The general history and appearance seemed to point to an acute pneumonia. The patient developed hemoptasis, with a temperature of 103° F., which was markedly irregular and septic. The hemorrhages were continuous and the fetor of the breath marked. On autopsy the left lung was found to be firmly adherent from apex to base, projecting through the left aspect of the pericardium, a fluctuating swelling was found, bounded below by the diaphragm and internally by the adherent left lung. This was in a position to receive the systolic shock to the heart and was transmitted to the chest wall through the semifluid contents of the gangrenous cavity. The heart was neither hypertrophied nor fixed and the swelling and pulsation referred to was undoubtedly due to the peculiar fixation by adhesions of the lungs to the chest wall.

Carotid Body.—From the examination made by J. FUNKE (*Proc. of Path. Soc., Phila.*, September, 1904) it is not possible to believe that the carotid body is present as often as is generally maintained. Of the eight fetuses examined, it was present only once. A number of animals examined presented no such structure, and in one fetus a cervical ganglion occupied the position of the body. When present, the organ is enclosed in a vascular fibrous body from which bands penetrate into the interior, dividing the parenchyma into two halves. These halves are again separated into lobules, which are composed of cells having no definite arrangement. They are large, closely set, with abundant, poorly-staining protoplasm, and large, oval nuclei. Rarely they are separated by a delicate reticulum and exhibit gland-structure. An intimate relation with minute blood-vessels is everywhere evident. Tumors of the carotid body are rare, and generally occur in adolescence and adult life. In the fifteen cases reported, the youngest patient was eighteen years and the oldest sixty years. Neither sex seems predisposed. In two there was a family history of malignant disease. One of the tumors was first noticed after the extraction of a tooth and fracture of the inferior maxilla. This patient had a history of inflammation of the throat and glandular swelling. In another patient there was a history of tonsillitis. It is generally conceded that the body develops until the age of puberty, when it either atrophies or arrests in development. If the body continues to grow, a tumor is formed which generally belongs to the class of peritheliomata. These have been mistaken for tuberculous glands, liponia, sarcoma, aneurism or cyst of the neck and are generally malignant, since recurrence after extirpation has been reported.

Cause of Death After Double Nephrectomy.—If both kidneys are removed from a rabbit, the animal will remain alive for about a hundred hours in comparative good health. Death is usually preceded by paralysis of the hind limbs, and convulsions are rare. In order to determine the cause of death, H. COUVÉE (*Zeitsch. f. klin. Med.*, Vol. 54, Nos. 3 and 4) injected the blood and the blood serum of these rabbits into both healthy and nephrectomized animals, but no symptoms were noticed. The same negative results were obtained with the sterile extract of liver, kidneys, muscles and brain; in fact, it seems as if all these substances were harmless. Since the freezing point of the blood was considerably diminished in all cases, the author concludes that the real cause of death is the increased osmatic tension.

Bacteriological Study of the Throat in Scarlet Fever.—Streptococci and staphylococci were found by J. F. SCHAMBERG and N. GILDERSLEEVE (*Proc. of Path. Soc., Phila.*, September, 1904) in the vast majority of cases of scarlet fever, and the first mentioned organisms also frequently in apparently healthy throats. Both germs are undoubtedly often concerned in the complications of the disease, but are not to be looked upon as the specific agents. The diplococcus described by Class as the cause of the disease was found in but a comparatively small percentage. The interesting findings of Mallory of protozoa-like bodies will doubtlessly stimulate research along these lines. It is quite possible that the failure in the past to discover the contagium vivum of the disease, has been due to the fact that almost exclusive search for vegetable parasites has been made.

Pancreas in Diabetes.—The present knowledge of the relation of the pancreas to diabetes is summed up as follows by E. SAUERBECK (*Virchow's Archiv*, Vol. 177, supp.). In every normal body sugar metabolism is regulated by means of the liver, the nervous system and the pancreas. Changes in the liver may bring about hyperglycemia and glycosuria directly by an increased conversion of glycogen into glucose. The nervous system seems to have a stimulating, the pancreas an inhibitory effect upon this mechanism, since certain injuries to the brain and changes in the pancreas may lead to glycosuria. This latter organ exercises its influence upon the liver by means of an internal secretion, which is probably elaborated in the islands of Langerhans. These are highly vascular, and their characteristic cells stand in intimate relation to the vessels. Their specific nature is also evident from the fact that they resist many lesions which invade the parenchyma of the pancreas. It has been proven by experiment that diabetes will not occur as long as the islands are preserved. They present severe lesions (atrophy, hyaline changes) in almost all cases of diabetes, yet there is a certain percentage where liver, pancreas and nervous system are absolutely normal and only functional changes can be held responsible. The functional disturbance, however, may also reside in the brain or spinal cord. This theory of disturbed function without lesion applies especially to the hereditary forms of the disease in young individuals or in patients with marked symptoms of neurasthenia. By means of specific cytolysins it may be possible in the future to exclude one of the two components of the pancreas and thus to discover the true function of each.

OBSTETRICS AND GYNECOLOGY.

Heart and Circulation in Pregnancy and Puerperium.—The result of extensive clinical studies made before and after labor are published by A. STENGEL and W. B. STANTON (*Univ. Penn. Med. Bull.*, September, 1904), and their conclusions may be summarized as follows: They believe that there is not during pregnancy any hypertrophy of the left ventricle nor special increase in its work. The increase in dulness toward the left is due to the upward displacement of the diaphragm and the consequent displacement of the heart in an upward and outward direction. The comparative outlines before and after labor, made from a series of tracings, show a rapid return to the normal position. A noteworthy fact was a frequency of the increase in the extension of dulness towards the left in the second and third interspaces and by the frequency of distinct pulsation in the same area. In the absence of any evidence of retraction of the lung, and in view of the fact that the pulsation discovered in this region was distinctly marked, it is evident that this condition of things is ascribable to distention of the conus arteriosus and root of the pulmonary artery. The frequent presence of a systolic murmur, most clearly audible in the same area, further substantiates this opinion. Moreover, the position of the right border of the heart seemed on the average too far toward the right, which, with the conditions present at the root of the pulmonary artery, convinced the authors that there is probably during the latter months of pregnancy some continuous dilatation of the right ventricle, though this is apparently of a very moderate degree. Such a state of affairs can hardly be regarded as surprising when it is remembered that the upward displacement of the diaphragm and pressure upon the lungs must necessarily increase the difficulties of the pulmonary circulation. The condition of the abdominal recti is important from the point of view of the circulation. In multiparæ separation of the recti materially lessens the tendency to displacement of

the diaphragm, and diminishes in a corresponding degree the displacement of the heart during pregnancy. After delivery this diastasis of the recti, however, may occasion a downward displacement of the heart, and the contrast before and after labor may be quite as pronounced as in primiparæ, though the first position occupied may not have been far from the normal. The investigations of the blood pressure show conclusively that there is no material increase of this pressure before or after labor. During labor a notable increase was sometimes found, similar to that observed by others.

On the Behavior of Leucocytes in Gynecological Diseases and Labor.—Whereas the value of a hyperleucocytosis in the presence of a hidden suppuration has lately been regarded as of lessened importance in surgery, it is claimed by PANKOW (*Archiv f. Gyn.*, Vol. 73, No. 2) that careful observations have convinced him that it is of greater moment in gynecological diseases. In every case of inflammatory adnexal disease, if the leucocytes number more than 10,000, and all other causes for their increase can be eliminated, purulent inflammation of the adnexa is always present. But if the number is below 10,000, in chronic cases, suppuration cannot be excluded with certainty. The leucocyte count must always be considered in connection with the pulse and temperature. When carcinoma is present there is usually no leucocytosis, likewise none in myomata, but after considerable bleediny has taken place in the latter instance, a leucocytosis is evident. In 24 operative cases, Pankow demonstrated a leucocytosis in 22, and this he attributes to the opening of new channels of infection by the operation and the chemotaxic irritation of the cell necrosis in connection with the wound and the absorption of the products of the latter. The leucocytosis regularly diminishes if no wound infection or other complications set in. In labor, during the period of activity of the pains, the leucocytosis can be observed up to the time of the rupture of the membranes. Where the pains are severe and the labor prolonged, a further increase can be noted after the rupture, extending even into the first hour after the placenta is delivered. During the first twelve hours after labor, the number of leucocytes returns to the normal.

Etiology of Prolapsus Uteri.—An interesting theory as to the causation of this condition is advanced by O. BURGER (*Archiv f. Gyn.*, Vol. 73, No. 2). He reports a case where in a newborn child there was complete prolapse of the vagina and uterus, degeneration and atrophy of certain groups of muscles in the lower extremities, atrophy of the pelvic floor musculature, as well as sensory paralysis of the lower limbs and the trunk as far as the upper border of the spina bifida. Burger believes that this case will explain the cases of uterine prolapse occurring in women who have never born children (about 3.5 per cent. of the cases). In these instances the factors usually brought forward are insufficient, such as manner of living, occupation, venereal excesses, improper nourishment, inflammations and tumors. Freund attributes the condition to infantilism, others to an insufficient development of the peritoneum. In searching the literature, the author has found 12 cases where this dislocation of the organs was already noted in the newborn child,—ten of these also presented a spina bifida. He therefore sets aside the supposed influence of an infantile condition or the constitution of the peritoneum, and concludes that the association of spina bifida, atrophy of the pelvic floor muscles, and genital prolapse, can be attributed to some disturbances of the sacral nerves which results in the production of the anomalies in question. This view seems to be confirmed by instances seen in older individuals, where some injury affecting the sacral plexus is followed by not only a primary nervous disturbance but also a secondary uterine prolapse.

PEDIATRICS.

Alcohol and Children.—There are manifestly two ways in which alcohol can reach the child, according to G. CARPENTER (*Jour. of State Med.*, October, 1904), namely via the parent and by direct access. In the former case the action can be subdivided into (*a*) its action on the sperm or ovum, and (*b*) its action on the maternal organism. Alcohol taken by the stomach may be detected in the ovary or testicle within a very few minutes. The toxic action on the sperm or germ cell may be inferred from the frequency of alcoholic history in the parents of the victims of epilepsy, idiocy imbecility and moral perversion, and to the increased predisposition to the occurrence of organic disease, to various infections (particularly tuberculosis), and to the production of various congenital malformations. One of the causes of the inability on the part of the mother to nurse her child, is ancestral alcoholism. A great part of infantile mortality is to be attributed to the latter phase of degeneration. Alcohol may be traced in the milk within twenty minutes of its ingestion, and for seven or eight hours afterward. Acute or chronic alcoholic poisoning in the infant may be thus caused. The following superstitions and practices are responsible for the administration of alcohol to infants and children. The belief that alcohol will stimulate the child's growth, prevalent in Europe; that gin will prevent colic; that brandy will appease the crying infant. The use of alcoholic confections is not uncommon. Infantile dipsomania is not rare and has been acquired through parental encouragement. The author warns the profession against the indiscriminate prescribing of alcohol for sick or convalescing children without laying emphasis upon the exact amount to be given. The danger of acute alcoholic poisoning by the direct absorption of alcohol from compresses used to reduce fever, must be borne in mind. Even alcoholic fumes have been known to affect young infants. The commonest cause of cirrhosis of the liver in children, is the ingestion of alcohol in repeated doses. There is no evidence to show that Bright's disease or fatty heart is ever produced by this agent in the young. Alcohol expends its main influence in the child upon the nervous system—upon the higher nerve-centers, especially in relation to retardation of development. The outcome of the discussion on the therapeutic value of alcohol seems to be that, although many individual points are still undecided, the weight of evidence tends toward the view that alcohol is a toxic drug, even in small quantities. Any evidence in favor of the employment of alcohol in medicine rests on a clinical foundation. Experiment has demonstrated that immunity in various infections is lowered by the use of alcohol; this has been shown by Abbot, with staphylococci; by Beard, with diphtheria, and by Nicloux, with rabies and tetanus. Many physicians now resort for stimulation to strychnine and caffeine rather than to alcohol. This drug is a greater poison to the child than to the adult.

"Shorten the Time from the Cow to the Baby."—The laws prescribe all manner of requirements for

dairies, cows and the constituents of their milk, but little or nothing is said as to the age of the milk. A. R. RAYNOLDS (*Am. Med.*, October 22, 1904) calls attention to the fact that twelve-hour milk is worth much more from a dietetic standpoint than twenty-four-hour-old milk, while thirty-six-hour milk not only has little food value, but is positively harmful to the young. This applies only to milk in bulk, however,—bottled milk keeping fresh for several days on ice. Milk begins to deteriorate, in digestibility and wholesomeness, from the moment it is exposed to the air. In twenty-four hours after being drawn there will be 400,000 micro-organisms to the teaspoonful, unless checked by cold. The food value is also impaired and the milk rendered poisonous by the growth of these bacteria, so that the young are not only starved but poisoned. Milk intended for the young should be bottled and in the hands of the consumer within twelve hours after milking. The writer claims that no legislation will be enacted making the delivery of twenty-four- to thirty-six-hour-old milk illegal until the public is educated to a knowledge of the evils of stale milk and its murderous effects upon the young.

GENITO-URINARY AND SKIN DISEASES.

Gonorrheal Phlebitis.—A case of this rare complication of gonorrhea is reported by ROSENFELD (*Berl. klin. Woch.*, June 9, 1904), in a young man who developed a marked phlebitis in the lesser saphenous veins about four weeks after an attack of acute gonorrhea had apparently subsided. This gradually disappeared with the use of evaporating lotions. From a study of 26 cases thus far reported, it seems that the affection is usually present in young men during the subacute stage of a first attack of urethritis. In most of these cases an arthritis was also present. Varicose veins were seen in only one instance, so that this condition cannot be looked upon as a predisposing factor. The saphenous vein seems to be most often involved. Pain and edema are the main symptoms and six weeks the usual duration of the affection. The writer believes that the infection is due to the rupture of some hitherto unrecognized focus, probably in the prostate, from which the septic material enters the venous system. The treatment is the same as that of phlebitis in other parts.

Treatment of Urticaria.—The etiology of urticaria is sometimes very simple, sometimes very complex, say F. TREMOLIÉRES (*Ann. de la Polichnique de Paris*, August, 1904). Acute urticaria may be caused by an irritating parasite, such as a flea or bed bug, or by some irritating plant. Frequently the eating of certain food, such as shellfish, or certain medicines, such as balsams or chloral. Treatment consists naturally of a light purgative, some intestinal antiseptic, such as salol, or benzonaphtol, and quinine or alkalies. Low diet for a few days is necessary. For the pruritus, carbolic or evaporating lotions are necessary. The following prescription is useful:

℞ Carbolic acid, pure..... 2 grams
Glycerin ..... 50 grams
Water. .....150 grams

Lotions of chloral hydrate, 5 to 200, neutral dusting powders of chalk, starch, zinc oxide, with camphor finely pulverized, one to two per cent. A useful ointment is:

℞ Zinc oxide.....3 to 5 grams
Cocaine hydrochlorate (or menthol),
0.3 to 0.60 grams
Vaselin. .....30 grams

Hot or cold baths are not as useful as tepid baths. If the pruritus is rebellious it is necessary to have recourse to a protecting envelope, either an application of a paste or plaster. In the grave urticaria of auto-intoxication prompt treatment by laxatives or emetics, and in case of collapse, subcutaneous injections are necessary. Edema of the glottis is a serious danger of acute urticaria. Hot foot baths and hot applications to the neck, hot fumigations and the administration of ether, Hoffman's anodyne and acetate of ammonia. In spite of this, sometimes tracheotomy is necessary. In chronic urticaria, careful dieting, forbidding the use of wine and other alcoholic beverages, acid or fermentable, or indigestible foods of any kind. Bowels should be moved by gentle laxatives. The dyspepsia, or atomic condition of the stomach is best treated with the use of absorbing powders, antiseptic or alkaline, such as charcoal, chalk, sodium bicarbonate or magnesia. Renal insufficiency may exist or the uric acid diathesis. A definite vasomotor neurosis may be present. All of these call for definite treatment. The use of mineral waters properly selected is valuable.

Eye-strain as a Causative Factor in Sinusitis.—That eye-strain holds an important place in the production and maintenance of this conditon, is the statement made by W. L. PHILLIPS (*Am. Med.*, September 17, 1904), although he does not claim that all forms of accessory sinusitis are due to it. The fact first to be ascertained in making a diagnosis of frontal sinusitis is at what early age do the frontal sinuses develop, for they are not present at birth. Observations vary on this point, but it may be accepted that the sinuses are present at the sixth year of life. Nationality must also be regarded, and investigation has shown that in the Germans the frontal sinus attained the greatest development, with the other nations following, the negro and the Chinese being at the end of the list. Patients who suffer from frontal sinusitis complain of frontal headaches, pressure above the eyes, inability to concentrate thought, dizziness, nausea, injected conjunctiva, defective vision, etc. The only positive way of making a diagnosis is to establish the presence of pus within the cavity. Care must be taken to exclude supra-orbital neuralgia, and where there is doubt between sinusitis and meningocele or aneurism of the ophthalmic artery, it is well to draw off some of the fluid for microscopical examination. In this connection it must be remembered that this particular form of sinusitis is limited to an inflammation of the lining membrane which varies from a slight congestion to a purulent condition. The nervous system bears an important part in the production of secretion. To produce clear vision with an astigmatic eye, all the residual nerve energy must be used up, because of the increased work required to focus an eye that has different meridianal lengths. This drain of nerve force robs other parts of the required energy to keep up a normal condition, and acts as would a division of the vasomotor nerves dilating the blood vessels and increasing the amount of mucus in the frontal sinus. If this secretion is allowed to accumulate from day to day, it will eventually become infected by germs entering the sinus from the nasal cavity. The writer is unable to state what percentage of sinusitis is due to eye-strain and what percentage may be cured by glasses, but in the cases in which he tried this method, he was usually successful. A series of ten cases is detailed, in which no special treatment was directed to the sinusitis, other than proper glasses. It is advised, however, that local treatment be also instituted in addition to the other.

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PROGRESS IN PROSTATIC SURGERY.

THE nature of the advance in the radical treatment of enlarged obstructing prostates is so important and withal so life and misery-saving that new and trustworthy methods cannot too rapidly be spread abroad.

The secret of the advance is to be found in the more thorough knowledge of the pathology of the organ. This has come, in the case of the prostate, with peculiar slowness. Although a correct view of the cause and nature of the morbid process was entertained and published by Sir Herbert Thompson over forty years ago, few surgeons took the trouble to verify his observations or to foster his teachings, with the result that, if we are to believe the views of some recent workers, a false presentation of the subject has, until very recently, been universally taught.

Few indeed are the practitioners who do not from early teaching conceive of the organ as having two lateral lobes, and, when obstructing, an offending central lobe. Even that almost inhumanly accurate tome, Gray's Anatomy, makes the statement that the prostatic portion of the urethra "passes through the gland." It does no such thing. True enough, this is what appears on first inspection to be the actual condition, but, as Thompson demonstrated, and as has recently been most conclusively proved, the two lateral lobes, each covered with an inner and an outer capsule, simply reach around and envelop the canal. How different is this from the boring-out process described by Gray.

Further, as to the so-called "middle lobe." It does not exist. It is quite true that in certain isolated and very rare instances there may be adenomatous tumors springing from the lateral lobes which, when single and favorably placed, may assume the proportion of a "lobe." The majority of "middle lobes," however, are simply the more or less symmetrically overdeveloped lateral expansions of the *two prostatic glands.*

If we are to believe the testimony of an acknowledged authority on these matters, it will, in the future, be necessary to entirely change our prostatic nomenclature. J. P. Freyer, in a recent exhaustive article (*Lancet* 1, 1904, p. 870), speaks as follows of the gross pathology of the hypertrophied organ: "The prostate is, in reality, composed of twin organs of apparently purely sexual function, which, in some of the lower animals, remain distinct and separate through life. So they exist in the human male during the first four months of fetal existence. After that period, in the human fetus, they approach each other and their inner aspects become agglutinated except along the course of the urethra, which they envelop in their embrace. These two glandular organs which constitute the lateral lobes of the prostate, though welded together to constitute, as it were, one mass, remain practically as distinct as the testes."

If, therefore, based on its gross morphological appearance, the gland or glands is to be spoken of as a single organ, this must be only with the distinct understanding that developmentally, and pathologically as well, the prostate is, in reality as double as the testes.

Suppose success to have at length crowned the efforts of those who are striving to undermine fallacious old prostatic teachings and to blot out hereditary genito-urinary superstitions, what result may be looked for?

We hope that that dread blight of old age, "catheter life," may cease to exist. Be it said that had Thompson's warnings, sounded over forty years ago, been heeded, many a man in the prime of intellectual and physical vigor would not have been dragged into an untimely grave

by this ghastly and forbidding specter. Surgery is to blame for this lapse in the care of old men. Had fewer ovaries been sacrificed and more prostates dug out, may not both men and women have been happier and longer lived?

If, as has been repeatedly stated, catheter life, or catheter death, as it should more aptly be called, can at the very outside average no longer than four years; if, as is held on the very highest authority, death is the penalty for using the catheter in one hundred per cent. of cases, is it not time for us all to wake from our lethargy and urge the perfection of the ideal operation for the diseased prostate?

THE UNVEILING OF PRENTICE.

WHILE it may be true, as the French very epigrammatically state, that it is "the first step that tells," yet it is unquestionably the last one that gives a finished value to the whole and adds an increased worth to the collection, which, if incomplete, would be of but little profit to any one. *Finis coronat opus* and young Lochinvar would cut but a sorry figure in his immaculate evening clothes were he left destitute of the conventional white tie, while the most valuable of paintings would show to poor advantage without the accustomed frame. A freshly papered wall is lost without its border, and though it is the first brush which takes the mud from off our shoes, yet it is the last and final polish that renders them of use to us.

And this is as true of medicine and medical remedies as it is of an issue of postage stamps or a collection of coins. For while they may each and individually be possessed of a certain value, the total aggregate is largely increased from the fact that they represent a complete and finished series. Thus the owner of the celebrated proprietary remedy in the West who advertised that his medicine "cured chills and all other diseases, and was good to eat on bread," completed his cycle, as the specifics otherwise in use were not adapted for luncheon relishes, while the customary *hors d'oeuvres* of the bills of fare are not possessed of therapeutic virtues. The specimens of a single plate of Hogarth's "Rake's Progress" or Bartolozzi's "Four Seasons" are of infinitely less relative value than the completed sets, and this is a fact that should be as apparent to the physician as it is well known to the connoisseur.

The practice of medicine has been, and, it is to be feared, always will be, a thing of fads and fashions, not only in the treatment but in the etiology of disease, and practitioners of even a dozen years' experience can look back and remember how indiscriminately all the ills that flesh is heir to have been attributed to the same cause, and how each and every organ of the human body has been held under suspicion for producing trouble by reflex action without a clear verdict having been rendered against any one of them. Thus we had the epoch of "malaria," when every head or backache, every feeling of general malaise was at once attributed to it, and the patients without further examination were immediately saturated with quinine. This, with time and its healing influence as an adjunct generally sufficed, and the snap diagnosis was confirmed. The late Dr. Oliver Wendell Holmes was in the habit of saying that "Malaria was a large box and that there was a great deal in it," but we doubt if it ever could have held a thousandth part of what it was charged with, for malaria, as a rule, like Dr. Wiley's Scotch Whisky, is only produced in a pure state, in a quantity sufficient for home consumption. Its symptoms and effects are pathognomonic of the disease and are highly characteristic of it. It cannot, however, be claimed as a universal factor in the rundown condition that is liable to attack every one in the spring and fall.

This epoch of malaria was followed by the era of "Nervous Prostration," and every anemic American woman who had tried in vain to combine the pleasures of society with the duties of maternity was placed forthwith on her back in a "rest cure," and the overworked nervous man of business was patted on the shoulder with the pleasing assurance that there was "nothing organic," while the unprofessional ears of both were soothed with the generic shibboleth of *Neurasthenia*. Then came, from our national tendency toward specialism, a further splitting up of all the fruits of overtaxation and new remedies for their cure. We had "brain fag," "eye-strain" and the adaptation of spectacles for the relief of almost every pathological condition that had ever existed. Glasses for the neutralization of ills that had been inherited from the sins of our fathers, and which, without them, would be visited upon our children even unto the third or fourth generation. In fact, up to the present time, inebriety is practically the only serious condition that some enthusiast or other has omitted to ascribe to an ophthalmic origin.

Now, however, the collection is complete, and the missing link has been supplied. For the gap has been filled by one Dr. Chalmers Prentice, who is described in the report as "a prominent Chicago oculist," who has declared solemnly to the National Optician's Convention in Milwaukee, that "alcoholism can be cured by properly fitted eyeglasses." "He found," he states, "that inebriates generally suffer from certain deviations in the accommodation and convergence of the eyes, and he had noticed in many cases that glasses which remedied these derangements of sight had also the effect of diminishing the patient's appetite for liquor." Dr. Prentice also described a dipsomaniac being fitted with glasses and then losing all desire for drink after thirty days.

What other things Dr. Prentice has "noticed" he does not say, and it is greatly to be regretted that he has painted his picture with the broad brush of the impressionist rather than with the detail giving one of the miniaturist. For instance, he might have told us *what* the certain deviations of the convergence were that pointed so strongly toward the red light of inebriety, and explained why it was that when a person addicted to strong drink arrived at the age to lose his accommodation he did not lose his craving for liquor, too. He might also have given some further information concerning his quoted note, which was redeemed in thirty days after date, both in regard to his age and the amount of liquor that he had been in the habit of consuming.

Now drunkenness is a terrible evil, either in an individual or a community. It is a curse that has not only been the direct means of shattering many homes, and scattering peaceful firesides, but it is collaterally responsible for the formation of the W. C. T. U. (with the abandonment of the Army Canteen), the production of such lurid plays as "Ten Nights in a Bar-room" and the infliction on a sober and long-suffering public of the song of "Father, dear Father, come home with me now," so that any means available serving for its alleviation should meet with the fullest investigation. It may be in this particular case that headache had driven the sufferer to drink and that this being relieved by glasses, he returned to his normal condition, or possibly he was not a victim to a complete attack of mania a potu. He may have been simply "threatened" with it, as was the man at Oshkosh who lately testified on the stand, in regard to his responsibility, that he *almost* had delirium tremens, as evidenced by his seeing a blue owl on each of his bed posts.

But be this as it may, we cannot predicate a theory on a single case. One patient does not constitute a practice, nor does one swallow make a drunkard. So we must wait for further information from Dr. Prentice. Meanwhile, we cannot imagine that he will meet with much success in his educational efforts among the opticians. Missionaries have, ere this, been killed and eaten by their converts, and it is not always the engineer alone that has been hoisted by his own petard. The Pennsylvania legislature has declined to grant franchises to the Get-wise-quick Optical Institutes, and we confess that this delivery of lectures to them smacks overmuch of a recent advertisement in a woman's journal, "The whole science and practice of bridge whist in two, short, easy lessons."

Art is long, time is fleeting and, as these "expert refractionists" will discover sooner or later—

> Asthenopia is hypermetropia,
> Myopia is as bad—
> Insufficiency doth bother me,
> And refraction drives me mad.

ECHOES AND NEWS.

NEW YORK.

Subway Air.—According to analyses made by Dr. C. F. Chandler, the subway air of the city, so far as its oxygen content is concerned, is practically the same as the air of the street. What is wanted by the citizens, however, is not the sensational clap-trap of those who thought they found the air deficient in oxygen, nor the hasty contradiction by officially appointed representatives, but a careful, complete, and trustworthy study of the entire problem. We do not want 16 analyses, nor 36, but many hundreds taken at various times and sundry places.

Dr. Dew Wins Suit.—Henry E. Howland, as referee, has handed down his decision in an interesting suit brought by Dr. J. Harvie Dew, of New York, against the estate of Oliver W. Buckingham. The referee grants to Dr. Dew $10,000 for continuous medical services for five years and $10,000 for furnishing a home for the patient for three years.

Our City Parks.—Corlears Hook Park is located on New York's East Side just where the river makes a magnificent bend opposite the Brooklyn Navy Yard. With the exception of the Battery, it is by far the best site for a river front park on Manhattan, writes *Charities*. But a narrow strip of land between the park and the water is owned by private parties. And the exact angle of the bend has been held, so it has always been declared, by an estate which could not dispose of it to the city because the heirs were minors. During the Low administration, East Side social workers centered their efforts on the acquisition of the river front strip. The project was practically through the Board of Esti-

mate and Apportionment in December, when a technical flaw was discovered in the official advertisement, and the matter was laid over with assurances from the hold-over members of the board that the incoming administration would take it up. No steps have been taken. Meanwhile ground is being broken for a ten-story mill on the point-site which the officials had stated could not be purchased, and report has it that the water front may similarly be built upon, shutting in the park. There is only one possibility of forestalling the erection of the mill at the point. That would be an exchange of water front property a few blocks north now used as a city yard. It is a bad chance, but a chance. But there is no reason why any attempt to buy up and build up the river shore before the park cannot be forestalled by the city authorities. The incident shows, once more, the need for coordinated, intelligent action affecting the park situation in New York. Not only are the wrong sites likely to be purchased, but the right sites are being lost.

Politics and the Pneumonia Commission.—Even the *Pneumococcus*, deadly enough already, has worked its wires and gotten its "political pull" in fine working order. This time politics acts as an obstructionist. "The Civil Service Commission has ruled that the commission of medical experts appointed last year by the city authorities to investigate cases of acute respiratory diseases in the city with a view to lessening them, cannot employ assistants in other cities unless the physicians so employed first come to New York and undergo a municipal civil service examination."

Thus if the "Pneumonia Commission" desire to employ specialists in particular branches of the investigation of this most dread disease, be they Englishmen, Frenchmen, Eastern or Western, and New York should have the best; they must needs come to New York and pass an asinine civil service examination. The idiocy of this ruling is beyond comprehension.

State of New York—State Civil Service Commission.—Open competitive examinations will be held in various cities throughout the State, December 3, 1904, for the following positions: *Resident Physician*, State Industrial School, Rochester, $1,500 and maintenance. Candidates must be licensed medical practitioners of New York State and have had at least one year's experience on the staff of a public general hospital. Subjects of examination and relative weights: Materia medica and therapeutics, theory and practice, surgery, hygiene and sanitation, pathology and diagnosis, hospital management, 7; experience, education and special training, 3. *Fourth Grade Physician.* This examination is intended to provide eligibles for the position of Medical Interne and other medical positions of similar grade in the State hospitals and other State and county institutions. The usual salary is $600, with maintenance, including quarters, board, laundry, etc. It is open to men or women who have graduated within three years from a registered medical school. Candidates of the Homeopathic school will be admitted without regard to date of graduation. Candidates may be either non-residents or residents of New York State *and a license to practice is not required.* Subjects of examination and relative weights: Written examinations covering anatomy, physiology, chemistry, materia medica, therapeutics, obstetrics, surgery, theory and practice, 8; education, experience and personal qualifications, 2. In order to be eligible for appointment, candidates must obtain a minimum standing of 60 per cent. on the written examination and 60 per cent. on education, etc., and a general average of 75 per cent. The medical service of the State comprises the 16 State hospitals, with about 160 salaried medical positions and about 30 positions in the Pathological Institute, the Craig Colony for Epileptics and other institutions. All higher medical positions, from assistant physicians at $1,200 to $1,500 and maintenance, to superintendents at $3,500 to $4,500 and maintenance, are filled by promotion through regular grades from that of sixth grade or junior physician. The State service presents one of the very best opportunities not only for training in psychiatry, but for general and special medical, surgical, laboratory and post-mortem work as well. Persons desiring to enter these examinations must execute applications on forms supplied by the Commission and file them in the office of the Commission before noon of November 28. Application blanks and further information regarding the character of the service and the nature of the examination for Fourth Grade Physician may be obtained by personal or written application to the Chief Examiner, State Civil Service Commission, Albany, N. Y.

In Memory of Dr. William Rice Pryor.—The faculty of the New York Polyclinic Medical School and Hospital, through its committee, appointed at the annual meeting, held November 10, 1904, *Hereby Resolves*, That the death of Dr. William Rice Pryor, Professor of Gynecology in the New York Polyclinic Medical School and Hospital, which occurred on August 25, 1904, was a great loss and sorrow to the Faculty of the Polyclinic and to his many friends. Graduated from Princeton College in 1878, from the College of Physicians and Surgeons in New York in 1881, and from Bellevue Hospital in 1882, Dr. Pryor was particularly well equipped for his life work and the eminent position he attained in the special branch of medicine to which he gave his attention was due in no small degree to this thorough preparation. His ability, perseverance, originality and thoroughness were recognized by all who knew him, and will always serve as a stimulus to his fellow workers. Throughout his entire career he was in the highest sense the friend of the needy and the afflicted. The amount of time he devoted to charity work was enormous, and in many instances, where those under treatment could not afford to pay for little delicacies needed, he supplied them from his own purse, besides giving his services free. His attention to details and his personal supervision and care of those he treated was most painstaking.

His services to the Polyclinic were most valuable. Appointed as Clinical Assistant to the Chair of Gynecology in 1886, he filled all the intermediate positions most creditably until in 1895 he was made full Professor of Gynecology. His clinics drew students from all over the country, and his writings attracted marked attention both at home and abroad. He was a frequent contributor to medical literature, and shortly before his death had completed a Text-Book of Gynecology. We assure his bereaved family of our deepest sympathy, and do hereby resolve that this record be inscribed at length upon the minutes of the Faculty, that it be published in the medical journals, and a copy, suitably engrossed, be sent to the family of our late colleague. W. R. Townsend, *Chairman;* J. Riddle Goffe, Brooks H. Wells, *Committee.*

PHILADELPHIA.

The Jefferson Medical College Library.—The report of the librarian of the Jefferson Medical College Library for the year just ended showed some interesting and noteworthy facts concerning the contents and circulation of the college library. There were 3,009 volumes in the library, of which

439 were added during the year; 203 by gift, and 236 by purchase and binding, the largest gift being 78 volumes from the library of the late Dr. C. W. Horner. There are fewer than two thousand volumes of general text books in the library, and from these there was a circulation of 10,663 volumes.

Large Award for Personal Injury.—One of the largest awards ever made in the Philadelphia courts for personal injuries was lately made in the case of Mrs. Cecilia McGrew. In 1902 a street car in which the patient was riding collided with a wagon and threw her to the floor. She has since been unable to walk. In her suit against the Philadelphia Rapid Transit Company she was awarded $17,501 damages.

Vaccination Law Defective.—Decision in the case of a physician accused by the Bureau of Health of issuing a false vaccination certificate has freed some hundreds of the same charge. The certificate was based on a vaccination of a child three years ago, the mother stating it had been successful; it appears not to have been. The magistrate censured the physician for carelessness in giving the certificate, but could not hold him for violation of the law, as no time limit is specified. The decision will probably result in an amendment to the act of Assembly relating to vaccination.

Chorio-Epithelioma.—An instructive case of this new growth was reported at the Philadelphia Pathological Society November 10, by Drs. D. L. Edsall and W. E. Robertson. The patient was a woman of twenty-five years, who complained only of gastric symptoms. She had been married four years, and had had no children or abortions. Fifteen weeks before admission she had a hemorrhage from the uterus. Repeated physical examinations revealed nothing abnormal. Autopsy showed the presence in both lungs of nodules varying from a pea to a hazelnut in size. Similar growths were found in the liver, intestines and the uterus. The latter were encapsulated and apparently had no relation to placental tissue.

CHICAGO.

Dr. Geo. F. Butler.—In announcing his retirement as medical superintendent of the Alma Springs Sanitarium, Alma, Mich., and return to his former home, Chicago. Dr. Butler desires to convey his assurance of personal interest in his former clients. His return to Chicago does not mean withdrawal from the practice of medicine. On the contrary, Dr. Butler will limit his business to medical work exclusively, and has arranged excellent facilities for the care and proper treatment of nervous and chronic invalids in the city and from out of town.

Appointment of Dr. Carlson.—Dr. Anton Julius Carlson has been appointed associate in physiology at the University of Chicago.

Unprofessional Conduct.—This was the label placed upon the division of fees, which is said to obtain among certain physicians in Chicago and Illinois towns by the passage of the following resolution offered at a recent meeting of the Council of the Chicago Medical Society: "Any member who is guilty of giving or receiving a commission or of entering into any arrangement for the division of a fee for professional services, which arrangement is not known and fully understood by the patient or party by whom such fee is paid, shall be guilty of unprofessional conduct." A similar resolution was introduced at a meeting of the Chicago Gynecological Society, held November 18, which contained a rider requiring all new members to assent to the change by signing the Constitution, but leaving it optional whether the older members shall do so or not. The resolution was warmly discussed, but will again come up before a subsequent meeting before its adoption or rejection.

Injunction Against Civil Service Examination in Cook County Hospital.—Physicians of the three schools of medicine, to the number of 350, petitioned Judge Dunne for an injunction restraining the county authorities from placing members of their profession at the Cook County Hospital under civil service, a project for which examinations were scheduled. The concerted action is the result of a combination of three separate movements against the plan. Representatives of the several medical colleges and of the three different schools of medicine met in conference and after canvassing the situation agreed to bring a joint suit. The result has been that the matter will be taken into court. The grounds on which the restraining writ was asked are the services of physicians to the hospital are gratuitous, and therefore do not come within the jurisdiction of the merit law which covers paid employees. A test would be unfair to men of national reputation who are on the attending staff, inasmuch as technical knowledge will receive high markings. Students fresh from their books are said to be better qualified to answer certain questions than physicians of long experience, whose knowledge has become practical rather than theoretical. The project would serve to perpetuate a constant staff and new men would find difficulty in getting into the service. The appointment of the examining board was unfair, as thirty-two of the forty-two examiners are Rush Medical College men. The County authorities have been enjoined from placing members of the medical profession under civil service rule. The court exprssed the opinion that the County Board had exceeded its authority in attempting to hold an examination for positions. A final order will be entered on the bill for injunction by Judge Tuley in a few days.

State Conference of Charities Suggests Improvements in Institutions.—At a meeting of the State Conference of Charities, held in Rockford, Ill., November 16, Dr. V. H. Podstata, of the Dunning institutions, made the report of the Committee on the Care of Epileptics, in which the establishment of a colony by the State is urged as of extreme necessity. Reports gathered by the State Board of Charities indicate that there are about three thousand epileptics in Illinois. He displayed plans for cottages designed by the State architect, showing that the two-story cottages could be erected at a cost of about $300 per inmate. He recommended single-story cottages in preference to the double story plan. As a beginning for the colony, it is proposed to ask the Legislature for an appropriation of an amount at least sufficient to purchase one thousand acres of land for the site. Most of the provisions asked for by the Conference look toward legislative action. A series of resolutions adopted recommend the custody of all feeble-minded women by the State; the transfer of all insane patients from the various County poor houses to the State institutions; the transfer of the Dunning Asylum of Cook County from the care of the county to the State; the establishment of an epileptic colony and an appropriation for that purpose from the State legislature; the passage of a bill compelling the disinfection of houses in which there has been death from consumption; more adequate appropriation for the State factory inspector's office, to enable a more rigid enforcement of the laws pertaining to space and light.

CANADA.

Inebriate Reform Society of Ontario.—Last week this society was organized in Toronto, the object of the new organization as set forth in the draft constitution submitted being to promote the adoption of the probation system for the reformation of inebriates; to promote the adoption of the "home" or dispensary treatment in suitable cases; to promote the establishment of municipal sanitoria for indigent inebriates; to seek the necessary permissive legislation as provided in the proposed bill now before the Ontario Legislature; to distribute inebriate reform literature, and to favor long sentences for confirmed habitual drunkards. The fee for the membership is placed at $2; life membership, $25; and funds will be obtained from Government grants, city and county grants, and from private sources. Now that this movement in Ontario is to be pushed along by a well-organized society, it will be expected that the Government will act, and act promptly in the matter. Among those who are mentioned as Hon. Vice-Presidents are Professor William Osler; Dr. W. B. Geikie, Dr. James Thorburn and Dr. R. W. Bruce Smith, of Toronto; Dr. A. M. Roseburgh, who has been identified for a number of years with this matter, has been made permanent secretary of the new organization.

Central Hospitals for Consumptives in Ontario.—A few years ago the legislature of the Province of Ontario passed an act providing that when counties or municipalities or groups of counties or municipalities desired to erect and maintain hospitals for their consumptive poor that the Government would furnish aid toward the erection and maintenance of these. What promises to be the initial step in this direction was taken last week when representatives of five leading counties in Ontario met in conference at Galt and agreed that it would be in the interests of their consumptives if a sanatorium were erected for the five counties of Brant, Oxford, Waterloo, Wellington and Perth, and will immediately lay the matter before the respective county councils of these municipalities. Dr. Radford, of Waterloo County, presided at this conference, and gave the statistics of consumption and its ravages in the Dominion. According to his lights there are about 40,000 consumptives in the Dominion, and about 15,000 in the Province of Ontario. The deaths average about 6,000 throughout the Dominion annually; in Ontario last year they numbered 2,694; in his own county of Waterloo they numbered 17. This movement is an important one, as no doubt other groups of counties will follow suit upon the action of the above named.

British Columbia Medical Examinations.—The examinations of the College of Physicians and Surgeons of Britsh Columbia were held lately in Victoria, the seat of government of the province. Thirteen candidates presented themselves, of whom nine received first-class honors, permitting them to practice their profession in British Columbia. One of these was a lady, Dr. Eliza Anderson, of New Westminster, who will practice her profession in that town. The Examining Board for the present year consists of the following: Dr. W. J. McGuigan, Mayor of Vancouver; Dr. J. C. Fagan, of Victoria, secretary of the provincial board of health of British Columbia; Dr. R. Eden Walker, of New Westminster; Dr. A. P. Proctor, of Kamloops, President of the British Columbia Medical Council; Dr. J. M. Lefevre, of Vancouver, who is at present on his way to England; Drs. O. M. Jones and J. C. Davis, of Victoria.

GENERAL.

National Association for the Study and Prevention of Tuberculosis.—At a meeting of the Board of The National Association for the Study and Prevention of Tuberculosis, held in New York, November 16, 1904, it was decided to hold the first annual meeting of the Association in Washington, D. C., on the third Tuesday of May, 1905; that arrangements be made for a two days' meeting, in which there should be one or two general sessions with distinguished speakers upon the broad topics of tuberculosis, and special meetings of the three following sections: (1) Sociological, (2) Pathological and Bacteriological, (3) Clinical and Climatological; and, that so far as possible, these sectional meetings should not conflict one with another, each section to be presided over by gentlemen distinguished in their respective work, and only papers of undoubted merit and interest be presented. The membership of the Association includes a large proportion of the most eminent workers in the subject of tuberculosis throughout the country, and it hopes to make its first annual meeting an important one in the crusade in this country against tuberculosis.

Epileptic Colony Fakirs.—A recent Chicago story of imposture in the name of charity, affords a text for charity givers and students of sociology. This is ably set forth by E. P. Bicknell, in a recent number of *Charities*. The lessons which may be drawn from this story are rather obvious, but it may be allowable to refer to two or three of them:

1. The pathetic demand for a cure for epilepsy and the totally inadequate response of medical science, drives victims of the disease to grasp at the promises of quacks and irresponsible promoters of so-called "homes" and "sanatoriums."

2. The universal respect for the garb of the nurse and of the sister of charity, makes those garbs a peculiarly effective aid for the collector who asks money in the name of charity.

3. The ease with which the common, unthinking impulse of charity may be exploited almost with impunity, offers a constant temptation to the unscrupulous.

Five or six years ago William Held established what he called the Illinois Home for Epileptics, in Chicago. It was a private institution and his advertised purpose was to treat epilepsy by methods which it was promised would cure the disease. Mr. Held at that time was not a physician, and his methods of treatment included little or no medicine. The home had two departments—pay and charity. To support the charity department, Mr. Held employed as a solicitor a woman named Rachel Gorman. Rachel Gorman was not and is not a graduated nurse, but she arrayed herself in a striking costume which suggested at once to all beholders that she belonged to some order or group of nurses. She collected money from the down-town business district, but frequented the saloons and race tracks, where it was said she received generous contributions. After two or three years Mr. Held discharged Rachel Gorman. The reasons he gives for the discharge are that the woman drank to excess; that her character is not such as is consistent with the work which she was employed to do, and finally that she did not make a satisfactory accounting of her collections.

The Illinois Home for Epileptics, after moving from place to place in Chicago, was transferred finally to Arlington Heights, a suburb, where about two years

ago the building was destroyed by fire. The home has not been re-established.

After leaving the employ of Mr. Held, who since the opening of his home had obtained a degree of doctor of medicine, Rachel Gorman persuaded S. F. Cleveland, and another man, known as "Doctor" Gibson, to join in the establishment of an enterprise which was given the title of the American Chronic and Epileptic Association. Headquarters were established at number 1015 North Clark Street. Mr. Cleveland was manager, Rachel Gorman occupied the "charity chair," and "Doctor" Gibson attended to the medical treatment. Affairs did not go well with the American Chronic and Epileptic Association. Rachel Gorman charged Mr. Cleveland with various shortcomings. Mr. Cleveland declared that Rachel Gorman did not "turn in" as much of her charity collections as agreeemnt called for, and that she was intemperate and associated with bad characters. The woman employed several assistant collectors, and garbed them all. Patients were not cared for at the home, but came there once a week for treatment. It was apparent that the number of such patients was exceedingly small. "Doctor" Gibson was said to administer a certain kind of drug or medicine alike to all comers. What this medicine was, did not appear. Mr. Cleveland complained bitterly that he had been deceived in "Doctor" Gibson, asserting that when he entered into the partnership he had understood that Gibson was a doctor of medicine. An open rupture among the officers of the home led to Rachel Gorman and "Doctor" Gibson leaving Mr. Cleveland and starting an organization of their own, known as the American Epileptic Charity Association, but later as the "Rachel Gorman Home for Epileptics." The Rachel Gorman Home was said to be located at Round Lake, Ill. Mr. Cleveland moved to 1065 North Clark Street where he opened a home for epileptics and called it the Cleveland "Neurotarium." Mr. Cleveland employed one Dr. W. S. Maharg, as physician to his institution. Dr. Maharg claimed to have an unfailing remedy for epilepsy; also for tuberculosis.

Rachel Gorman, with a corps of assistant solicitors in uniform, began an extensive campaign for funds. Cleveland's Neurotarium also put a corps of solicitors in the field garbed as nurses, the costume being different from that of the Gorman collectors. During a period of perhaps eighteen months Rachel Gorman sent seven patients to board in the farmhouse of a Mrs. White, of Round Lake, Ill. In June, 1904, Rachel Gorman purchased a house in Blue Island, and from that time the Rachel Gorman Home for Epileptics was advertised to be there. A city office of the home was maintained at 91 Wisconsin Street. The number of solicitors, in striking green garb, increased to eight or perhaps more. Certain of these women were unfavorably known to the police. Some of them, on being interviewed, stated that the average daily collections for each solicitor were about $6. It continued to be quite impossible to get any evidence that a larger amount of charity was being performed than was expressed by the care of one or two epileptics at the house in Blue Island. Dr. Maharg, physician to the Cleveland "Neurotarium," not satisfied with the income of that institution, opened a dispensary for the treatment of consumption at 954 North Clark Street. This enterprise he called The Nazarene Medical Mission. He employed a number of solicitors, put them in a garb suggesting the trained nurse, and set them to raising money. The neighbors noticed that these women would enter a house of the number given in the morning, would presently reappear in nurses' garb, and that in the evening they would return to the house, leaving the uniform and depart in street dress. The matter was brought to the attention of the police who raided the house in October and found it vacant, except for the belongings of the solicitors. Dr. Maharg was arrested and in the police court fined $100 and costs. Not being able to pay the fine he was sent to the House of Correction. This was the beginning of police activity so far as epileptic charities were concerned. Rachel Gorman's office on Wisconsin Street was next raided, and the uniforms of her collectors seized, together with papers and printed matter. Records showing their operations were captured in this way. These showed that Rachel Gorman and her corps of assistants were collecting a surprisingly large amount of money from the charitable people of Chicago. One slip, dated July 8, 1904, showed collections made amounting to $164. Governor Richard Yates and William Jennings Bryan were shown to have each given $100. The statement was made that Rachel Gorman had paid $3,000 upon the Blue Island property which she had purchased, and that she had a bank account of several hundred dollars on the date of the raid. She had sent her uniformed collectors to the State Republican and Democratic conventions at Springfield, and had other collectors operating in St. Louis. A deposit slip was discovered showing a bank account opened in a St. Louis bank with $358 as a beginning. A warrant was issued for Rachel Gorman's arrest, but she was found confined to her home in Blue Island as the result of an injury received, as she explained through falling on a defective sidewalk. She threatens to bring a suit for large damages against the city of Blue Island because of this injury. The Blue Island City Council has passed an ordinance prohibiting a home for epileptics within the city limits, and Rachel Gorman has been notified to move out. At present her threat to sue the city for damages seems to restrain the Blue Island authorities from proceeding actively against her. The police have warned the proprietor of Cleveland's "Neurotarium" that his collectors must be kept off the streets, under threats of arrest and the closing up of his institution. Other "charity" schemes have been recently checked, also, and evidence relating to the true character of two or three more has been submitted to the police authorities and is now under consideration.

International Surgical Society.—The first Congress of the International Society of Surgery will take place in Brussels, in September, 1905, under the presidency of Professor Th. Kocher, of Berne. The order of discussion will comprise: "Value of the Examination of the Blood in Surgery," to be discussed by Dr. W. W. Keen, of Philadelphia; Dr. Sonnenberg, of Berlin; Dr. Ortiz de la Torre, of Madrid, and Dr. Depage, of Brussels. "Treatment of Prostatic Hypertrophy," by Dr. Reginald Harrison, of London; Dr. Rovsing, of Copenhagen, and Dr. von Rydygier, of Lemberg. "Surgical Intervention in Non-cancerous Affections of the Stomach," by Dr. Mayo Robson, of London; Dr. von Eiselsberg, of Vienna; Dr. Mattoli, of Ascoli Piceno; Dr. Monprofit, of Angiers; Dr. Rotgans, of Amsterdam, and Dr. Jonnesco, of Bucharest. "Treatment of Joint-Tuberculosis," by Dr. Bier, of Bonn; Dr. Broca, of Paris, Dr. Bradford, of Boston; Dr. Codivilla, of Bologne, and Dr. Willems, of Gand. "Treatment of Peritonitis." This subject will be discussed by Dr. M. Lennander, of Upsala; Dr. Friedrich, of Leipzig; Dr. Lejars, of Paris, Dr. A. McCosh, of New York; Dr. Krogius, of Helsingfors, and Dr. de Isla, of Madrid. "Surgical Diagnosis of Diseases of the Kidney," will be discussed by Dr. M. Albarran, of

Paris; Dr. Kümmel, of Hamburg; Dr. Giordans, of Venice, and Dr. Lambotte, of Brussels. All communications should be addressed to Dr. Ch. Willems, 6 Place St. Michel, Gand, Brussels.

The Japanese Red Cross Society.—The London papers are printing an interview with Miss McCaul, who was received a few days ago by the Queen on her return from an important mission to the Far East, having for its object the study of the Japanese Red Cross Society. A detailed report of the Japanese military nursing system is now in the hands of her Majesty, and an account of the mission will shortly be published in book form.

There can be no doubt that the Japanese are ahead of Great Britain in the matter of surgical and medical outfit, and most certainly in the management of field hospitals. This is due to the tremendous forethought and wonderful inventiveness of the Japanese. Yet rigid economy is observed. There are many useful lessons to be learned from the Japanese. The equipment of the hospitals is magnificent, and the fact that their system goes like clockwork is due to the intense esprit de corps among all their medical men. Miss McCaul was thoroughly delighted with what she saw of the care of the wounded. The medical science and nursing skill of the Japanese are wonderful. No woman nurses are allowed at the front, all the work being done by men. During war the female nurses are drafted into the big reserve and stationary hospitals in Japan, where they replace the male nurses, who are dispatched to the front. They are all Red Cross nurses, and are kept as a reserve. After a course of training they sign for sixteen years' service, but are free to follow their ordinary avocations so long as they report at intervals, so as to be available when wanted.

Southern Surgical and Gynecological Association.—The seventeenth annual meeting will be held at the Hotel Hillman, Birmingham, Ala., December 13, 14 and 15, 1904. The following porgram has been arranged: Presidential Address, by Dr. Floyd W. McRae, of Atlanta, Ga.; Address of Presentation of Davis Monument, by Dr. C. M. Rosser, of Dallas, Texas; Address of Acceptance on Behalf of State of Alabama, by Gov. R. M. Cunnigham, M.D.; Address of Acceptance on Behalf of the City of Birmingham, by Hon. W. M. Drennan. Titles of Papers: Gall Stones in the Ampulla Vater, by Dr. A. H. Ferguson, of Chicago; A Method of Uniting Intestines of Very Small or Unequal Caliber, by Dr. J. Shelton Horsley, of Richmond, Va.; Enterostomy, by Dr. J. W. Long, of Greensboro, N. C.; The Treatment of Fecal Fistula, by Dr. Stuart McGuire, of Richmond, Va.; Intestinal Obstruction, by Dr. D. F. Talley, of Birmingham, Ala.; The Abuse of Purgatives Before and After Abdominal Section, by Dr. I. S. Stone, of Washington, D. C.; Observations upon the Aseptic Technic of Abdominal and Pelvic Surgery, by Dr. Henry T. Byford, of Chicago, Ill.; The Employment of Celluloid Plates for Covering Defects in the Skull, by Dr. W. Perrin Nicholson, of Atlanta, Ga.; On the Sterilization of Cutting Instruments, by Dr. H. A. Royster, of Raleigh, N. C.; When Shall We Resect in Tuberculous Disease of Joints? by Dr. C. E. Caldwell, of Cincinnati, Ohio; The Clinical Consideration of Tumors, by Dr. W. F. Westmoreland, of Atlanta, Ga.; Personal Experience in the Surgical Treatment of Cancer of the Cecum, by Dr. G. Wiley Broome, of St. Louis, Mo.; Cases in Which Early Diagnosis of Cancer of the Body of the Uterus was Made, by Dr. Rufus B. Hall, of Cinncinnati, Ohio; Final Results in X-ray Treatment of Malignant Tumors, by Dr. William B. Coley, of New York; Fibroid Degeneration of the Uterus After Ablation of the Appendages, by Dr. J. Wesley Boveer, of Washington, D. C.; A Contribution to the Origin of Adeno-Myoma of the Uterus, by Dr. J. Whitridge Williams, of Baltimore, Md.; Alexander's Operation, by Dr. Charles P. Noble, of Philadelphia, Pa.; Effects of Suspensio Uteri on Subsequent Pregnancy and Labor, by Dr. Joseph Taber Johnson, of Washington, D. C.; Surgical Treatment of Goitres, by Dr. G. W. Crile, of Cleveland, Ohio; The Management of Acute Perforative Peritonitis, by Dr. J. Garland Sherrill, of Louisville, Ky.; Some Further Advances in Renal Surgery, by Dr. John B. Murphy, of Chicago; Report of a Case of Rupture of the Diaphragm, by Dr. George S. Brown, of Birmingham, Ala.; Typhoid Fever and Appendicitis, by Dr. J. C. Oliver, of Cincinnati, Ohio; Vaginal Cæsarean Section, Report of a Case, by Dr. C. Jeff Miller, of New Orleans, La.; An Unusual Case of Cæsarean Section: Double Vagina, Double Uterus; Pregnancy in One Uterus, Fibroid Preventing Delivery in the Other, by Dr. Geo. Ben Johnson, of Richmond, Va.; Obliteration of Stomach by Caustic, by Dr. S. J. Mixter, of Boston, Mass.; (1) Vesical Diverticula; Report of Four Cases Requiring Operation. (2) The ultimate Results Obtained by Conservative Perineal Prostatectomy in Seventy-five Cases, by Dr. Hugh H. Young, of Baltimore, Md.; A Typical Case of Tuberculous Peritonitis, by Dr. W. P. Manton, of Detroit, Mich.; Pelvic Floor Repairs During the Menopause, by Dr. Joseph Price, of Philadelphia, Pa.; Pelvic Inflammation: A Discussion of Some Moot Questions Relating Thereto, by Dr. L. H. Dunning, of Indianapolis, Ind.; Hematoma of the Ovary, by Dr. Magnus A. Tate, of Cincinnati, Ohio; Tracheotomy for Gunshot Wound of the Trachea, by J. McFadden Gaston, of Atlanta, Ga.; Stypticin in Uterine Bleeding, by Dr. H. J. Boldt, of New York; (1) Encephalo-Meningocele. (2) An Easy Method of Instituting Peritoneal Gauze through the cul-de-sac, by Dr. W. D. Haggard, of Nashville, Tenn.; Title Not Announced (Drainage), by Dr. C. H. Mayo, of Rochester, Minn.; Title Not Announced, by Dr. M. H. Richardson, of Boston, Mass.

The Late Dr. Henry Tuck.—At a stated meeting of the Medical Association of the Greater City of New York, held November 14, a report from the committee appointed to prepare a suitable minute in regard to the death of Dr. Henry Tuck, one of the charter members of the association, was received and adopted. The first part of the report was devoted to a biographical sketch of Dr. Tuck, and the concluding portion was as follows: "Although Dr. Tuck took a very active part in the management of the Life Insurance Company, he always retained his interest in medicine and in the friendships he had formed with members of his profession. He was greatly interested in the Society for the Relief of Widows and Orphans of medical men, and for many years acted as its treasurer; only giving up this position last winter, when failing health compelled him to do so. Those who were intimately connected with Dr. Tuck, both in his business and in his professional life, will always remember him as an unusually competent, faithful and successful man in whatever he undertook. (Signed) John P. Munn, *Chairman;* Richard H. Derby and W. Gill Wylie, *Committee.*

Yellow Fever in Cuba.—Yellow fever has appeared again in Cuba. Four cases have recently been reported through the Marine Hospital Service of the United States. Two of these have been in Punta de Sol, across the bay from Santiago de Cuba, and two in Havana. These have been the first known cases of the disease on the island since it was stamped out by the medical and military authorities of the United States.

during the American occupation of the island. The scourge of "yellow jack" has been unknown since early in 1900. Accompanying the reports of the scattered cases at Punta de Sol and Havana come the most disquieting news of a departure of the Cuban government from its plan of following American lines strictly in all the cities regarding sanitation. The streets are no longer cleaned. Safeguards are being dropped. Petty politics has resulted in an almost complete abandonment of the wise course pursued by the Americans, which was followed by the government of President Palma for more than a year after he began his rule.

It is said in official circles in Washington that the Cubans are paving the way for an epidemic of yellow fever, which will subject the entire southern seacoast of the United States to danger, and which may result in the adoption of unusual measures by this country under the Platt amendment. There is a possibility of the adoption of quarantine embargoes against all Cuban seaports, unless quick and radical measures are taken by the government of President Palma to stamp out the disease. Thus far the cases that have been reported from Cuba are believed to have come from Mexico on cattle steamers, with the exception of one, which contracted the disease from one of the Mexican cases.

Boston Societies.—The Boston Medical Library and the Suffolk Branch of the Massachusetts Medical Society have in conjunction arranged a series of meetings for the coming winter, at which papers will be read and a discussion held on certain subjects of general interest, medically and surgically. The first of these meetings was held November 16, at the Medical Library, and the subject of nephritis was there considered.

Dr. W. T. Councilman, of the department of pathology of the Harvard Medical School, first spoke on "Some General Considerations of the Pathology of the Kidney," going over in a brief and concise way; the pathological finding, in the conditions known as acute degenerative, acute glomerular, subacute glomerular, chronic diffuse and chronic intestinal nephritis. He dwelt on the slow development of the kidney, its very large blood supply and its high capillary tension and the part normally played by glomeruli and tubules in eliminating fluids and solids. The various methods of infection, the selective process in regard to certain cells used by various infections, and their results in the kidney as well as changes due to arteriosclerosis and old age were carefully gone over.

Dr. R. C. Cabot then gave a résumé of an investigation, which, for a number of years past, he had been following up on the subject "limitations of our knowledge of renal disease as shown by examination of the urine." In comparing the autopsy reports of renal disease found microscopically after death with the clinical diagnoses vast discrepancies were discovered. For instance, in 21 cases, pathologically found to be acute glomerular nephritis, only five cases were diagnosed as nephritis at all; in 10 subacute cases five were unrecognized, others being spoken of as fever urines; in the more chronic forms there was a better record but here those cases diagnosed had edema, ascites, etc., as aids in distinguishing them. Fifteen out of 17 chronic glomerular cases were correct and two-thirds of the cases of chronic interstitial and arterio sclerosis were born out by the pathologist. On the other hand, cases were found where the urine showed large amounts of albumin and casts of all kinds, while at post mortem the kidneys were quite normal. Dr. Cabot went on to speak of the very slight value of urea estimation as done clinically, and the decrease of our knowledge of urinary examination and of nephritis.

Dr. Edward G. Wood, of the Harvard Medical School, then read a paper on urinary examination, going carefully into the characteristics of urines as regards twenty-four hour amounts, albumin and sediment in the classes of nephritis, spoken of by Dr. Councilman, borne out by his experience.

In the discussion which followed Dr. T. Bergen Ogden took a stand against Dr. Cabot's views, reporting 30 cases in which urinary examination and pathological findings had quite agreed.

OBITUARY.

Dr. DUNCAN CAMPBELL MACCALLUM, who for over thirty years was an active teacher in the medical faculty of McGill University, died last week in Montreal at the advanced age of eighty-one years. In 1850 he was graduated M.D. from McGill, and proceeded to England where he spent some time in London, Edinburgh and Dublin, obtaining the degree of M.R.C.S. Returning to Montreal a year later he was appointed a demonstrator of anatomy in McGill, and in 1856 was appointed to the chair of clinical surgery, which he held up to 1860 when he became professor of clinical medicine and professor of medical jurisprudence. In April, 1868, he was appointed professor of Obstetrics and of Diseases of Women and Children, a position he held up to 1883, when he resigned from active teaching. The late Dr. MacCallum was first elected visiting physician to the Montreal General Hospital in 1856.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, November 5.

THE KING AND HIS TAME SURGEON—THE RELATION OF HOSPITALS TO MEDICAL SCHOOLS—LONDON LUNATICS—THE BOWMAN LECTURE.

The exploits of the Russian Fleet in the North Sea have given opportunities for advertisement of which certain pastmasters in the art have not been slow to avail themselves. All the wounded fishermen, with a single exception, are under treatment in the Royal Infirmary at Hull, where they were landed. One man, however, was brought all the way to the metropolis that he might be cared for in the London Hospital. There was not the slightest necessity for this, as far as the patient himself is concerned, but the authorities of the hospital were determined to utilize the occasion. The Chairman of the Committee, Mr. Sydney Holland, a great grandson of Sir Henry Holland, a famous society physician of the earlier part of the last century, has the ear of the Queen, whom he uses as a decoy duck—*pour le bon motif*, of course, as it is all for the greater glory of his hospital. He induced her to send a message to Hull to the effect that a bed was ready in the London Hospital for the reception of a patient. Touched by this manifestation of royal thoughtfulness, the good folk of Hull sent up a poor fellow suffering from a severe compound comminuted fracture of the humerus, together with a wound of the back of the neck, in which fragments of shell were imbedded. As a natural result of the delay and the exhaustion caused by a long railway journey, the man was in a septic condition when he was admitted. But what is that to the honor of being under the direct patronage of the Queen and of being visited by Sir Frederick Treves at the special request of the King, who has deigned to express his

interest in the case? This condescension on the part of his most gracious majesty has touched the hearts of his loyal subjects, and their feelings will doubtless find expression in contributions to the hospital which is fortunate enough to contain a patient honored by the notice of the sovereign. Treves is supposed to have retired from practice some time ago, but according to the papers he still sees patients. Readers of *Martin Chuzzlewit* will remember Mr. Montague Tigg's famous conundrum, "When is a man in jail like a man out of jail?" to which that gentleman said no one has found the answer. If the word "practice" be substituted for "jail" I venture to think that an answer has been found by Sir Frederick Treves. A short time ago he was visiting a society lady who had hurt her leg; now he signs bulletins about the Prime Minister, who is said to have a small clot in a superficial vein in his leg. The truth would seem to be that Treves is kept hanging about the King, who sends him to look after people in whom he happens to be specially interested, whether it be a former Egeria, a victim of Russian "Captains Courageous," or a Minister of State. To a man of ordinary self-respect the position appears scarcely dignified; but men in this country will stoop to pick a new title or even a fresh decoration out of the gutter. When peers of the realm do not disdain to play the part of flunkeys at Court and high-born maidens strive for the privilege of acting as lady's maids, it is perhaps not surprising that doctors, whom Society looks upon as a lower order of creation, should be content to be treated by the monarch as servants. Some members of our noble profession have, it is well known, been proud to play the part of Sir Pandarus of Troy for royal personages. For centuries the surgeons to the Kings of France rejoiced in the title of valet. Edward VII. is keeping up the tradition of kingship by having at hand a tame surgeon, by means of whom he can display the vicarious benevolence which is a cheap way of earning popularity.

For years past, Mr. Stephen Coleridge, the leader of one corps of the antivivisection army, has brought charges against the London hospitals of diverting money subscribed by the public for the relief of the sick poor to the maintenance of the medical schools attached to many of them. He alleges that large sums are contributed out of the hospital funds to be used for purposes of medical education. He contends that "the money sent by subscribers to hospitals direct and to King Edward's Hospital Fund, is not given in order to afford medical students an education, partly defrayed by the charitable, nor is it given to enlarge the emoluments of lecturers in schools, nor is it given to buy animals for vivisection and instruments and apparatus with which to dissect them alive." Mr. Coleridge knows perfectly well that animals are not dissected alive, but he has made these reckless statements so often that it is likely enough he now believes them. George IV. used after dinner to relate with thrilling detail how he headed a cavalry charge at the Battle of Waterloo. He told the story so often that he at last came to believe it, and on one occasion even appealed for confirmation to the Duke of Wellington, who answered with admirable tact, "I have heard your Majesty say so." King George's laurels were won in far different fields, and Mr. Coleridge is, I believe, like Werther, a moral man, but there is evidently a strong psychological resemblance between them. In regard to the charge of diversion of funds, it is true that some of the hospitals make annual payments to the schools, but it has been shown over and over again that these payments are for value received in the form of services rendered to the hospitals by the medical staff, who are, for the most part, teachers in the schools, and by the students who do much of the actual ministration to the sick. It would doubtless be well for other reasons if the hospital schools were merged in the University of London, which has no organic connection with any hospital. This, besides other greater advantages, would have the effect of knocking the bottom out of a foolish and dishonest agitation. In the meantime the whole question of the financial relations between the hospitals and the schools is to be carefully investigated by a committee consisting of Lord Welby, a great financial authority; Lord Edward Fry, an ex-Lord Justice, and Archbishop of Stepney. The Committee is to consider and report: "(1) Whether any, and if any, how much, money given or subscribed for the relief of the sick poor to the twelve London hospitals having medical schools, is contributed, directly or indirectly, by those hospitals, or any of them, for the maintenance of medical education. (2) Whether any direct or indirect return for such contributions (if any) is received by the hospitals from their medical schools, and, if so, whether such return is equivalent to the amount of the contributions. (3) Whether, in the event of the committee finding that any hospital contributes to its medical school a sum in excess of the return it receives from the medical school, there are any special considerations advanced in justification of such expenditure, or any general considerations which would apply to all hospitals having medical schools." It is to be hoped that the result of the inquiry will be to suppress abuses, if any are found to exist, and effectually to stop the mouth of calumny.

The London County Council has control of all the public lunatic asylums, and of all pauper lunatics in licensed houses, workhouses, etc., in the County of Middlesex. There are eight asylums and one Epileptic Colony within the area of its jurisdiction. The number of lunatics under its charge was, according to its annual report, which has recently been issued, on January 1, of the present year, 17,592 (7,555 males and 10,037 females); this is an increase of 327 (236 males and 91 females) as compared with the foregoing year. In addition to these there were 6,356 patients (3,068 males and 3,288 females) in the imbecile asylums of the Metropolitan Asylums Board, making the total number of lunatics of all classes (exclusive of private patients and those chargeable to the Prison Commissioners), 23,948, as against 22,952 on January 1, 1903. The total increase of 996 lunatics is the largest annual increase the Council has ever had to record. The number of cases admitted to the London County Asylums during the year ended December 31, 1903, was 4,502, the number of patients discharged recovered was 1,352, being a trifle over 30 per cent. on the total admissions, a little over eight per cent. on the average number resident, and nearly 6½ per cent. on the total number under treatment. The number of deaths was 1,485, a percentage of 7.05 on the total number resident as compared with 7.65 in 1902. The County Council is very proud of its asylums, and as far as size and appearance are concerned it has reason to be so. An American physi-

cian who visited Claybury Asylum not long ago asked, when he saw the ballroom, if it was not Buckingham Palace he was being shown. A vast amount of money has been wasted in palatial buildings with accommodation for two or three thousand patients; but although these huge establishments impress the unthinking public, they make the judicious grieve. As places of treatment for brain-sick people they show results greatly inferior to those of small asylums; as places of scientific observation they are simply failures. The medical staff is utterly insufficient even if the Superintendent and his assistants could give their whole time to their patients; but if a house physician in a general hospital finds it all he can do to record his observations of fifty patients, what kind of clinical study can be expected of a man who has charge of five hundred? In addition to this a heavy burden of clerical duty is put on the shoulders of the unfortunate medical officer, and this he must do lest a worse thing befall him. The result is what might be anticipated. The medical work is scamped in a manner that makes the records useless and misleading, even when they are not purely imaginative, while the value of the figures may be estimated in accordance with the degrees of comparison "Lies, d—d lies, statistics." Of the quality of the clinical records some idea may be formed from the fact that medical officers often keep no notes at all, but hurriedly fill in their books more or less at random when a visit of the Commissioners in Lunacy is impending. A man in such an emergency has been known in his haste to take the post-mortem register instead of the admission book and describe patients as "in fair general health," who were not only dead but anatomized. Compared with this such statements as "No history or sign of syphilis" in a case where the traces of the disease were writ large all over the body, or "No evidence of tuberculosis" in another where there was a cavity in the lung into which a man could put his fist, are trifling errors. And it is to be feared that our lunacy statistics are, to a large extent, made up of such material. Under the present system medical officers are selected more for their social and athletic accomplishments than for their scientific knowledge. Comparatively few of the assistants have any prospect of rising to the post of Superintendent; hence in a professional sense they soon run to seed. If a man of any capacity does stray into the service he soon finds that ardor in the pursuit of knowledge or keenness in the discharge of his medical duties is too likely to bring him into conflict with his official chief or his Committee, perhaps with both. Original work is not encouraged, and the most enthusiastic student after a time loses heart and sinks into a groove of routine. Hence little use is made for the furtherance of knowledge of the abundant material in the asylums. Things are no more satisfactory from the patient's point of view. The indiscriminate herding together of cases of all kinds and degrees of insanity in vast crowds minimizes the chance of recovery in curable cases. For years the establishment of hospitals for the insane staffed by men equal in professional standing to the physicians and surgeons of general hospitals has been urged on the Council. This would make it possible to treat a number of cases in the early stage without marking them with the social stigma of declared lunacy. It would also give opportunities for the scientific study of insanity, such as do not at present exist in this country. The London County Council is entitled to the credit of having made provision for scientific research in the well-equipped laboratory at Claybury, where excellent work is done by Dr. F. W. Mott. But the advantages of the laboratory are in great measure nullified by its distance from London. If it were transferred to London, it would doubtless become a center of neuropathological research. There is a powerful party in the Council, however, which is jealous of scientific progress, and so far they have successfully resisted this proposal. But, if disposed to be obstructive in regard to research, the Council seems to be inclined to a forward movement in the direction of treatment. Some time ago a "hospital villa" in connection with the Bexley Health Asylum was opened for the reception of female patients. There they are kept till a diagnosis has been made. Cases in which there appears to be no chance of recovery are then transferred to the main building. Those of a more hopeful character are kept in the villa till convalescence is established, when they are transferred to a convalescent villa and eventually discharged. The plan has worked successfully, few of the new cases needing to be admitted to the main building at all. So far it has been tried only in the case of female patients, but the results have been so encouraging that a "hospital villa," for men is about to be built. On the whole, though our method of dealing with lunatics stands urgently in need of reform, signs are not wanting that a better day is about to dawn.

On November 3 Dr. Mott delivered the Bowman Lecture before the Ophthalmological Society. The audience was unprecedentedly large, though it is to be feared that most of them followed the distinguished lecturer non *passibus æquis*. His discourse was, as Mark Twain said of the story of Jonah and the whale, "interesting but tough." In addition to the members of the society there were histological and psychological experts, but the histologists were perplexed by the psychology, while the psychologists found themselves at sea in the boundless deep of histological details over which Dr. Mott sailed serenely. The lecture embodied the results of original work on the Evolution of the Visual Cortex in Mammals. It was pointed out that there was a correlation of structure and function which was exhibited by progressive complexity of cell lamination of the visual cortex in mammals from Insectivora to Primates. The more, said Dr. Mott, the animal depends on vision as a directive faculty in its preservation, the more complex is the structure. The transition of uniocular panoramic to perfect binocular stereoscopic vision shows successive stages in the number of direct fibers until in the primates there is semi-decussation and, as far as his observations go, this may be correlated with a progressive development in the layer of higher associational pyramidal cells lying above the layer of granules. The progressive evolution of vision as a directive faculty is simultaneous with a motor adaptation, especially related to the mode of feeding and defence, rather than to a particular species. Carnivorous animals, especially cats, therefore have their eyes set forward, abundant direct fibers, and good binocular vision to enable them to seize their rapidly moving prey with their teeth or paw. Better motor adaptation, as Sherrington has independently suggested from his flicker observations, is probably the essential cause of the direct path of the optic fibers and binocular vision. It is, however, in the primates

that we have semi-decussation of the optic fibers, a muscular lutea, eye-movements in all directions independent of head movements, associated head, eye and hand movements and perfect binocular stereoscopic vision, associated with the hand, which, in the apes, becomes the principal executive agent in the procuring of food, defence and flight. Visual images are now always associated with impressions of the exploring hand and the ideas of form, substance, extension and qualities of objects are the complex of the visual and tactile kinesthetic images and capable of endles variations. This we may connect with an occipital lobe, a line of Gennari visible to the naked eye, a deep layer of pyramids with a double layer of granules in the visuo-sensory striate area. Even more important than this is the appearance of a definite associational zone, in which there is a much greater depth of pyramidal cells, the third layer of which is characterized by very large pyramids serving as higher complex association neurons between the visual cortex and the auditory and tactile motor areas. As we rise in the scale of primates this associational zone increases with the more perfect specialization of the forelimbs for manipulation and the erect posture and this we may correlate with the increase in area of the associational or visuo-psychic zone and the pushing back and infolding of the striate visuo-sensory cortex so that in man it comes to occupy the infolded calcarine region of the mesial surface, although some types still preserve the anthropoidal character. It is possible that the same causes may give rise to the shifting forward of the anterior motor eye centers. Dr. Mott added that the extensive observations, as yet unpublished, of his assistant, Dr. Watson, on the visual cortex, showed that the pyramidal layer was concerned with higher associative memory and educability. Concerning this view the lecturer endeavored to show that a most important factor in educability is a storage capacity in associative memory of the combinations of stereoscopic visual images with varied complex and refined tactile motor experiences which arriving at its fullest perfection in the primates, progressively develops in successive stages from the ape to man, coincidently with the specialization of the hand and the erect posture, until by reciprocal interaction of the directive and executive faculties the hand becomes the instrument of the mind; and that this progressive evolution may be correlated with anatomical changes in the convolutional pattern of the brain and increase in numbers and complexity of the pyramidal system of higher association neurones.

SOCIETY PROCEEDINGS.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, held October 26, 1904.

The President, Dr. Roland G. Curtin, in the Chair.

Case of Typhoid Fever Complicated by Appendicitis.—Dr. Moses Behrend read this paper. The patient contracted typhoid fever of a rather severe type; in the third week of the disease he developed symptoms of perforation which at operation were found to be those of appendicitis. He recovered for an operation of the latter; ten days afterwards he was tapped for pleurisy with effusion. About fourteen days after this he developed pneumothorax. The patient made a fine recovery.

Dr. L. J. Hammond, in the discussion, thought that the case illustrated the fact now generally admitted that appendicitis occurring in the course of typhoid fever is entirely coincident, and in no way connected with the typhoid process; and that the majority of cases of appendicitis occurring in the course of the typhoid fever are recurrent attacks. Given a case of typhoid fever with the early symptoms of pain, rigidity and other symptoms of appendicitis one should suspect the presence of a large amount of adhesions; and, if the symptoms are severe, the surgeon is justified in operating at once. The removal of the appendix, breaking up of adhesions and liberation of the coil of intestines will lessen the possibility of typhoid perforation.

Dr. W. H. Teller thought that, notwithstanding the fact that the mucous coat presented all the symptoms of typical catarrhal appendicitis, the condition was that of perforative typhoid with involvement of the peritoneal covering of the appendix by extension and not a case of pure appendicitis.

Dr. J. Allison Scott thought it should be remembered that there are several varieties of inflammation of the appendix in typhoid fever. Reviewing the literature of the perforation of the bowel, and collecting statistics of the hospitals of London and suburbs and of the Pennsylvania Hospital he has found 382 cases of perforation, 17 of which were in the appendix alone and due to ulceration from within. There is another type in which during the course of the typhoid fever, or during the convalescence, acute inflammations of the appendix have been set up but not due to ulceration within the appendix, but from the appendix becoming gangrenous and perforating in the ordinary form of appendicitis. Dr. Scott is inclined to believe that if cases of perforation of the bowel are studied carefully it will be found that the appendix is involved more frequently than is thought.

Dr. Astley P. C. Ashhurst believed that there were several varieties of appendiceal inflammations during typhoid fever. That they could be distinguished by the different symptoms he did not think was possible. In the early stages of typhoid fever there could be seen constant pain, vomiting and a certain amount of shock with rigidity over the appendix. At operation there would be found infiltration of the appendix and an appendicitis, the probability being that these were only typhoid lesions in the appendix. Later on there might be present the same conditions through perforation of ordinary inflammation of the appendix. The inflammation, he believed, would so obscure the typhoid lesions that to distinguish one from the other was hardly possible.

Dr. Behrend, in closing, took exception to Dr. Teller's remark that the case was one of preperforative typhoid fever. He believed it to be one of pure appendicitis; due, he granted, to the extension of the inflammation as a result of typhoid. He considered it a case of pure typhoid fever and not such as Dr. Teller stated. As interesting facts connected with the case, Dr. Behrend stated that of five nurses connected with the case, one contracted typhoid fever, another appendicitis and died from peritonitis. The patient's wife contracted typhoid fever and recovered. The nurse who contracted typhoid fever also recovered.

The Trend of Modern Prescription Writing.—Dr. M. Clayton Thrush considered this subject both from the standpoint of the physician and the pharmacist. One thousand prescriptions were examined and criticized from the standpoint of incompatibility, whether chemical, therapeutical or pharmaceutical. The number of ingredients used were classified in groups. The

number in which the metric system was employed was also considered and finally the prescriptions were classified acording to the manner of writing, terminations and phraseology being included. These various headings were elaborated upon and improvements suggested. The prescriptions containing only official preparations were classified, also those in which proprietary preparations were used.

The Relation of the Physician to the Bureau of Health.—Dr. S. W. Newmayer said that in the word cooperation were gathered all the duties of the physician to the Bureau of Health. There should be no need of legally calling some physicians to account for failure to report cases of contagion in order to set an example to other physicians. He made a plea for more accurate and earlier diagnosis by the use of laboratory methods, and for a postgraduate course in the clinical diagnosis of the more common communicable diseases. The Bureau of Health, he believed, should have under its supervision a series of lectures and demonstrations by competent teachers, which physicians should be invited to attend. It should be compulsory for all medical students to attend lectures on contagious diseases and to see cases in the city hospital. There should be given to each graduating class one or more lectures on the duties of a physician to the Bureau of Health, explaining what diseases to report and the best means to protect the public. To lessen the mortality from tuberculosis there should be a practical and concerted plan of education, as well as a report of cases of tuberculosis. Every physician should spare a little of his time in imparting the principles of domestic hygiene to those to whom he is called in his daily work. The consideration of simple lessons on contagious diseases should be borne in mind by physicians having the revision of school text-books. To lessen the infant mortality, largely caused by impure milk and improper food, the physician, trained nurse and even the public should be taught a few practical and simple tests for impurities in milk.

Dr. Edward Martin, Director of Public Health, said that the desire of the Bureau of Health was to help the medical profession, to act as its agent, and not as a foreign intervention, that the Bureau asked the help of the profession and was ready to give in return its assistance. He referred to the corps of young men insructed in the work, every man of which has been a hospital resident, had had a special course in contagious diseases, and in other directions been fitted for the work. Dr. Martin said: "You cannot teach all men tact and judgment; you can make many men wise, but you cannot make all men sensible." The underlying spirit of every man in the corps, however, he said, was to help, and to stand by the profession, and not to interfere. With the help of the profession the whole city work would be a success.

Dr. I. Valentine Levi said that the fact that the Board of Health should carry out the disinfection, unless the physician obtain special permission to do so, had been the source of much trouble between the medical inspector and the doctor. The family physician would tell the family to burn some sulphur and that the Board of Health would not need to do anything, and when the medical inspector would appear and insist that the house be disinfected, he would get all kinds of beautiful appellations. In one instance the medical inspector was reported to the central office as doing everything possible against the medical profession. He felt that the physician should tell the patients that the house must be disinfected by the Board of Health, unless he orders otherwise.

Dr. S. Solis Cohen regarded as important the question of what was to be done with patients suspected of having diphtheria, until a culture was made. He believed it the duty of the physician, whether in his office or in the dispensary, to disinfect the throat promptly when there is any question in diagnosis.

Concerning the action of the Board of Health and its inspectors, his own experience has been that there need be no trouble, if both sides were willing to act, as human beings who recognize their own liabilities to mistake, ought to be willing to act. Occasionally an officious or tactless inspector had done or said something in the household of a patient to which he felt he could take reasonable objection; but, he had always found the communication with the superiors of this tactless or officious inspector had been the means of having him so instructed that he would not repeat the error elsewhere. That, he believed to be one of the factors in the relation between the physician and the Board of Health that each physician would well cultivate, being prompt and unsparing in the direct report to the chiefs of the Bureau of Health of any dereliction, or seeming offence, on the part of their inspectors. Sometimes it would be found that the physicians had been misinformed by the patients. He felt that the Bureau of Health was deserving of all the support and advice that could be given by the medical profession.

Dr. Jay F. Schamberg agreed with Dr. Cohen that there were many instances in which both patients and physicians were misrepresented. He knew that the average ability of the members of the board of medical inspectors in the detection of contagious diseases was of a very creditable standard, and bound to increase. He believed that the medical profession had full confidence in the Bureau of Health, and that the subject should be approached with a little more charity on both sides.

CHICAGO ACADEMY OF MEDICINE.

Regular Meeting, October 14, 1904.

The President, Wm. H. Wilder, M.D., in the Chair.

Chorea Insaniens.—Dr. Daniel R. Brower stated that the insanity of chorea, particularly the insanity of Sydenham's chorea, was a very infrequent condition. In Huntingdon's chorea there was progressive mental deterioration eventually leading to dementia. The most important form the practitioner had to contend with was Sydenham's chorea. In his cases for the last dozen years there was about one case of chorea insaniens in every two hundred. In two-thirds of the cases of Sydenham's chorea mental disturbance occured. Chorea was a brain disease, and mental peculiarity was conspicuous. As a rule, the mental state was one of confusion. Accompanying the confused mental condition there were maniacal and depressing states. A very large proportion of the cases he had seen belonged to the maniacal type. The depressive confusional form of insanity, which was the outgrowth of chorea, was much less common. The last case he saw was a young woman of twenty-three years, in whom the maniacal manifestation was very pronounced. She had had chorea since she suffered from a fright two months previously. When he saw her the case was a well-marked one of the maniacal type of acute confusional insanity. Sometimes there was a stuporous state; but usually it was the maniacal confusional type, or the depressing confusional type. Many years ago he witnessed a post-mortem on a case of chorea insaniens of the Sydenham type in a girl,

nineteen years of age, in whom there were found most striking pathological conditions. Among them were minute multiple emboli in the striate arteries. The patient had an endocarditis. Whenever he had the opportunity of getting hold of a case in the beginning, he insisted upon rest for the first week or ten days, no matter how mild the case. The child should have as near absolute rest as possible. It should be put to bed, given all the playthings possible and separated to the utmost extent from the family generally. Rest and isolation were the foundation stones upon which any treatment of chorea should be built to prevent the development of more serious mental symptoms. The best single remedy for chorea was arsenic. Fowler's solution was the best preparation in the majority of cases. When the arsenates did not agree with the child, it should be given sodii arsenitis. Arsenical preparations must be pushed in order to bring about curative results in chorea. Arsenic should be given until the approach of toxic symptoms, as curative effects were just a little short of toxic effects. The next best remedy was cimicifuga. Frequently he combined the two, the fluid extract of cimicifuga, giving it in gradually increasing doses, until he got to its physiological effect, and in this way it gave satisfactory results when arsenic alone failed. He had found cimicifuga beneficial in the Sydenham chorea of girls about he menstrual period. Furthermore, one should not forget the diet, as these children were below par in nutrition. They should be given digestible, easily assimilable foods in the greatest possible abundance. He would put a child to bed for a week, sometimes two weeks, and then gradually relax the rest cure. He would have these patients go to bed early and have breakfast in bed. During the remainder of the day they should go outdoors and play. This would be about the second week, and if he found no letting up in the choreic movements under this treatment, he would try static electricity. There was no question as to the sedative effects of positive insulation on the insulated stool of a well-working static machine. The prognosis of chorea insaniens was not bad. Some patients would go on to permanent insanity, and some would die; but the latter proportion would be small.

Dr. Frank X. Walls reported the case of a woman, about eight months pregnant, who, in 1891, developed chorea in its gravest form. She was admitted to the Cook County Hospital, and after a few days there, on every treatment he could think of to relieve her, she died. A post-mortem examination was made, and endocarditis and some congestion in the brain were found. Chorea was merely a manifestation of a condition that might exist in a variety of pathological processes. It was the manifestation of a neural malnutrition, an intoxication or infection, and showing itself in bizarre, and incoordinate muscular movements. There was usually a mental picture in a patient suffering from this malnutrition and intoxication that showed itself in neural and mental phases. These cases varied clinically from the mildest to the severest types. Many of them were relegated to an insane asylum as incurable. In a large number of cases there seemed to be a close association between those of chorea and some infection. In cases of chorea evidence of infection, such as elevation of temperature, and the localization of distinctive inflammatory conditions in certain organs, as the endocardium primarily, the joints sometimes, and may be the brain, often existed. It was a remarkable thing, yet nevertheless true, that in no other condition did one find as complicating endocarditis in cases of acute rheumatism as in chorea. More endocarditis accompanied this clinical picture than in any other diseases. Of a series of cases recently investigated in the Leipsic Hospital, there were over 79 cases of chorea that showed endocarditis clinically. This agreed with the experience of Osler. In a large number of cases that attended Osler's clinic, evidences of endocarditis were found years after the chorea had been recovered from. Not alone did chorea occur with acute articular rheumatism, but it often followed influenzal rheumatism, tonsillitis, and particularly a type of which he had seen a number of cases since his attention was called to it, severe gastrointestinal disturbances, especially such as suggest appendicitis. The tonsils were the seat of entrance of infection into the body, and rheumatism was not an infrequent condition following tonsillitis. A little girl presented herself a year ago, with an attack of severe nervousness, very much like the choreiform movements, with pain and gastrointestinal symptoms, vomiting and joint complications. After one week of illness the pain in her abdomen became so severe that she was forced to go to bed, although previous to that she was walking about. The child was in bed a week, during which the abdomen was very much swollen. She vomited offensive matter that seemed fecal. During all this time there was dynamic obstruction of the bowel. He saw the child a year after, and she had a marked endocarditis. Her elbows and knees were partially anchylosed, but the mental symptoms had cleared up almost entirely. This child probably had had appendicitis. A physician at the time made such a diagnosis, with rupture, peritonitis, and systemic infection, which produced multiple joint complications. Probably this irritation in the brain had resulted in chorea.

In any given case of chorea, the etiological factor or factors should be considered, and each case should be treated individually. He would not subscribe to the administration of any remedy, unless there was a distinct individual indication for its administration. Treatment should be individual.

Dr. Henry T. Byford, when he was engaged in general practice, had a great deal to do with children. He treated a number of cases and looked upon them from a more simple standpoint than was done now. His treatment then was iron, laxatives, and if the case was more or less acute he gave a few doses of chloral from time to time, together with rest treatment. He guarded against the giving of food that was liable to disturb the bowel and digestion, and regulated the diet of these patients. In these cases a great deal of trouble came from the alimentary canal which was largely reflex. Supposing there was heart trouble or disease of the serous membrane due to toxins, what produced the toxins? Supposing it came from the alimentary canal by way of the abdominal tonsil, so-called, when that occurred there was usually intestinal disorder, which irritated and rendered abnormal the fatty tissues about the appendix, a more central absorption of poisons was liable at the same time to produce reflex symptoms. He thought chloral did much good, although he would not continue its use until it produced any debilitating effect. Iron did good in fortifying resistance against irritation in the alimentary canal. Convulsions arose from irri-

tation of the alimentary canal in children. In gouty individuals contractures of limbs could be relieved by laxatives given quite a while.

Dr. William F. Waugh mentioned the case of a young man who, soon after starting in school, developed choreic symptoms. He was quite positive that the young man's eyes were troubling him, and therefore sent him to a very capable ophthalmologist, who examined the eyes carefully and reported that there was nothing the matter with them. So sure was the speaker that the patient's eyes were affected from peristent use in school, that he sent him to another ophthalmologist, who found the eyes affected, fitted them with glasses, shortly after which the choreic symptoms subsided. Since that time, when the choreic symptoms reappeared, he had charged the young man with neglect to wear his glasses, and found it had always been the case. Here the trouble with accommodation was undoubtedly the cause of chorea. He mentioned the case of a child who was about to be sent to an institution as an instance of total moral depravity, but a rhinologist fortunately removed the adenoids which the child had, and the patient developed a sweet disposition. He emphasized the importance of paying attention to elimination and to the regularity of the exertions.

Dr. James G. Kiernan said that chorea insaniens was a term applied by the Germans to a type of chorea in which there were manifestations of the acute confusional type of insanity, very frequently without emotional basis. This, as a rule, was an expression of a systemic state of exhaustion, that produced the chorea, rather than a condition secondary to chorea. That chorea might produce insanity there was no doubt. Mental agitation of the patient would prove a sufficient breakdown for inhibitions to a motor direction, and in the same way breakdown in a psycho-motor direction. Of the cases cited by Osler, two were striking as indicating, not as Osler claimed, the deep-seated, distinct nosological character of chorea, but that this systemic adynamia might produce chorea and a changed mental state. One was a marked systemic disturbance; the other was the secondary stage of syphilis. The mental conditions of the secondary stage of syphilis, as the speaker pointed out nearly one-quarter of a century ago, and which had since been corrborated by Regis and others were essentially acute confusional states. There was a state closely allied to the acute confusional conditions, so far as the mental symptoms were concerned; so-called Bell's disease, typhomania of some authors, the delirium acutum of the Germans, and delirium grave of Spitzka. In the acute confusional states, except where secondary to conditions allied to rheumatism, etc., lesions might be absent. There were no pathological findings, microscopic or macroscopic. In delirium acutum, or delirium grave, there was well-marked, clearly distinguishable meningoencephalitis, with equally decided and destructive microscopic changes. He did not believe with Meyer that delirium grave or confusional insanity was an expression, strictly speaking, of this state, but that this state was an extension consequent on the circulatory disturbances of what might have been an acute confusional state. He was much impressed with this in the many necropsies made at a time when Dr. E. C. Spitzka and he were collecting somatic material in cases of insanity. He was struck with the absence of actual lesions in certain cases which did not pass beyond the acute confusional state as contrasted with the demonstrable presence of lesions in this state. This was twenty years ago. When the germ theory of disease began to dominate medical thought, he was strongly of the opinion that in all probability typhomania or delirium grave was a germ condition. Tests by Koch's law in Italy, Scandinavian countries, Germany and the United States had signally failed to demonstrate any germ factor. Furthermore, the condition may come on as one of the so-called meningitides. It would come on after school strain and a number of conditions of that kind. It might also come on from the perturbations which occur in railway accidents and similar conditions. Of that class he had seen two cases, which died in the Cook County Insane Hospital. In that instance, as in a similar one, that threatened to be the subject of litigation, the early diagnosis was chorea. Mental symptoms grew deeper and deeper, then there followed an extremely marked, semi-stuporous delirium, in which the control of the sphincters was lost. There was rise of temperature, and then death. Autopsy showed very marked and decided evidences of delirium grave. In a similar case in Chicago there had been an accident on the Northwestern "L" road, in consequence of a collision. The girl was removed to her home in what appeared to be a condition of chorea. A diagnosis of chorea was made by the attending physician. Changes went on the case passing from chorea simplex to a confusional mental state, which grew deeper and deeper until she finally died. An autopsy was made by the coroner, who made the pathological diagnosis of acute cerebral meningitis, which was all he was entitled to make from the findings. Fatal termination had not been suspected. The question was raised whether this condition was due to the accident or some outside cause. There was a question raised which had arisen in this State ever since the Braun *vs.* Craven case was brought up, in which it was decided that simple fright is not sufficient. The question of physical impact was brought up and argued. The qu stion was incidentally raised by the railroad company as to whether the trouble was not due to secondary infection. The only element in the girl's history which bore on secondary infection was the existence of a gum-boil that had been treated by the family practitioner, from which she had made a recovery without showing the slightest effect. The question of physical impact was discussed a good deal. In consequence the case was never taken up in the courts because the amount offered by the railroad company would have been all that could have been realized by litigation under the old law as regards responsibility for death. In this case there was very little doubt left from the evidence as to the direct determining influence of traumatism. It seemed to him a constitutional factor, rather than a local one, played a large part in many of these cases. He was strongly opposed to the treatment of cases of chorea insaniens in insane hospitals. The insane hospital had its value, but the vast majority of cases of confusional mental states could recover excellently under general hospital treatment. They should be removed from their accustomed environment. A large number of cases were benefited by arsenic, and arsenic should be physiologically pushed. As nearly all these states depended upon weakness, or disordered inhibitions, they were benefited by those agents that

acted as sedatives rather than stimulants. Furthermore, strychnine in small doses was frequently an excellent sedative. It gave a certain amount of rest that was not attained by other agents.

Dr. William L. Baum had, at the present time, a child suffering from whooping-cough that had developed choreic symptoms. He looked upon the disease as a symptom-complex, which might be due to a large number of different causes, as syphilis, toxemia, rheumatism, etc. Regarding the use of arsenic and pushing it to the constitutional limit, every year there occurred increasingly large number of cases of arsenical neuritis. There were also cases of paralysis following administration of arsenic. A few days ago he saw a case of paralysis of the facial nerve occurring in an individual to whom arsenic had been given for a period of years, and carried up to the constitutional limit. Some time ago the patient complained during the administration of arsenic of extreme pains occurring in the region of the Gasserian ganglion. All of the symptoms were found which are present in the ordinary arsenical neuritis. There was considerable pressure in this region, and complete motor paralysis developed on one side of the face from which recovery was extremely slow.

Dr. C. S. N. Hallberg asked if Dr. Brower had had any experience with the hypodermic administration of sodium arsenate solution. Dr. Moyer had used it quite extensively for several years, and spoke strongly in favor not only of its hypodermic use of it, but likewise of the sodium arsenate as against the arsenite, the form of arsenic represented in Fowler's solution. Evidently there was much less danger of untoward effects from the arsenate of sodium than there was from the arsenite. He also asked whether there was any difference in value of the preparations from the green cimicifuga or dried. This question had come up different times in the revision of the pharmacopæia. Some therapeutists argued that cimicifuga should not be admitted to the pharmacopœia, because only preparations of the green or fresh root were of value. That would be inadmissible in the pharmacopœia, and it would not be proper to admit a dry drug, or preparations of it.

Mr. V. G. Gallagher (of the Chicago Bar) stated many phases of the subject that could be discussed. As to the right to recover damages for chorea and kindred affections, he had this to say: The question as to whether injuries resulting from fright and terror would form a recoverable basis in an action at law had been the subject of much discussion in courts of law not only in Illinois, but in all States. As a rule, as gathered from the conclusions arrived at by various authorities, there was one class of cases in which damages could not be placed on recovery. The first class was where the injury was brought about purely by fright and terror, but physical impact was entirely absent. In those cases, while there was a general rule of law in reference to actions predicated upon negligence, there was no liability except for such consequences as were usually ordinarily likely to emanate from the act complained of, and in determining whether the consequences were usual and ordinary, the individual would be treated as a general individual, and not as a special one. That is to say, the party claiming redress would be considered by the law as a healthy individual from the time the alleged cause of action arose, and not as a sickly one, so that if the acts complained of, which were alleged to produce injuries, were not such as would produce injuries of the character complained of, in an ordinary healthy individual, whatever that might be, there could be no recovery for the injury regardless of how severe it might be.

Before taking up the other class, one of the principal cases to rely on for a ruling was the one Dr. Kiernan had just cited (Braun *vs.* Craven). That was a case where the defendant (a minister) called at the house of the plaintiff's sister, the sister being a tenant of Craven's, and finding the door open he walked through the house to her room, where the patient was sitting on the floor assisting her sister in packing preparatory to moving, and suddenly asked what she was doing, following that interrogation with many gesticulations, and statements to the effect that he would not allow them to move, and would have a constable there in a few minutes, and he was going to have his rent, etc. She alleged that his conduct on that occasion, when she first turned around and saw him standing up, greatly frightened her, particularly his subsequent gesticulations, with the result that she became afflicted with St. Vitus' dance and some other nervous ailments. The trial resulted in a verdict in her favor for $9,000. This was reversed by the Appellate Court, then carried to the Supreme Court, where the Appellate Court was sustained. There were two reasons assigned which he did not think were sound philosophical legal reasons, namely, as a basis of conserving the interests of public policy, damages should not be recoverable in cases in which injuries were claimed to result slowly from fright and terror. Furthermore, dangerous use might be made of such a ruling if injuries were permitted to be made a basis of action where there was no means of measuring the damages.

The second class was one in which the question was whether there was physical impact preceding the nervous conditions. In such cases it had been held, regardless of how slight the impact might be, if nervous troubles followed, that is, including distress and anguish of mind, or excluding everything else, and including only distress and anguish of mind, that compensation might be allowed. The other class is where the intention of the wrongdoer was to inflict mental anguish and distress. The principal cases included in that class would be those of seduction. Where seduction was cause for right of action, which was not he rule in Illinois, except on the theory of loss of service, the parent, guardian or employer in some instances might maintain action against the seducer for the loss of service and slander, etc. In this latter class of cases the recovery was not limited to the actual damage sustained, but purely exemplary damages may be awarded. The intent of the wrongdoer, if possible, must be established, so that the punishment meted out will be commensurate with the injuries. The peculiarity presented by the different rulings consisted in this: In the first instance, while the Supreme Court decision in the Braun versus Craven case might be said to be well taken upon the ruling first rendered by it, namely, the conditions under which this woman was frightened, were not such as would frighten an ordinary healthy individual, and the results claimed to exist were not such as would follow ordinarily, yet, as to the other decision or ruling, that it is against public policy, yet as to the other decision or ruling, that it is against public policy to allow damages which cannot be measured, if re-

covery of damages is allowed for this element in cases where there is an infinitesimal physical impact, so that the major portion of the injury sustained is a nervous one, mental anguish, etc., it is just as easy in such cases to exaggerate and elaborate upon that basis as it would be in cases where the physical impact was entirely absent.

As to the other proposition, he said there was no methodical rule by which damages could be measured in every action brought for personal injuries. The rule of law in all such cases as to how much shall be awarded was left to the sound judgment and discretion of the jury, and their verdict was not interfered with, except where it was manifest they had abused their discretionary power. His advice to physicians was that where they had a patient who was suffering severe mental anguish and other nervous disturbances, or even fright, it would be well for them to devote some of their time to discover some little physical impact, even though it consisted of not more than a concussion caused by an explosion or something of that kind. A German and his wife heard a noise in the basement of their house, and went down there to see if they could discover what it was. The wife lit a match, which was followed by an explosion. There was no physical impact in that case other than that caused by the concussion. This case was taken away from the jury in the trial court on the strength of the decision rendered in the case of Braun *vs.* Craven. The trial court seemed to think that simple fright was shown by the fact that physical impact was absent. The Appellate Court reversed that decision, largely upon the strength of Dr. Kiernan's testimony, who was quoted extensively in the opinion which was rendered.

Dr. Brower, in closing, said that no one recognized the untoward effects of arsenic more than he did. He was glad Dr. Baum called attention to the fact that these effects were due to the long-continued use of arsenic. He did not think any physician was justified in administering doses of arsenic such as he had referred to in any case for long periods of time. If results were not speedily obtained, the remedy should be withdrawn, so that the general principles applying to the treatment which he had enunciated did not contemplate the long-continued use of arsenic in large doses. As to the hypodermic use of arsenic in chorea, he remembered very well Dr. Moyer's paper, but for some reason or other his patients would not submit to the hypodermic use of arsenic. He could not get them to take more than one or two doses. The patients were nervous childdren; they did not like to be hurt, he did not know of any way of giving a hypodermic injection of arsenic without inflicting some pain, unless it be done by cataphoresis, and even then there would be more or less pain. He was free to confess that he had never obtained the results from the hypodermic use of arsenic others had. He did not know whether it was the green or the dry preparation he was using. That cimicifuga had effects upon the ordinary individual and upon certain sick people he was as sure as about any drug. The fluid extract was the preparation he had used.

Why the Quack?—Dr. William F. Waugh read a paper on this subject, which was designed as an inquiry as to how far the medical profession itself was responsible for the resort of the public to irregular and non-professional methods of treatment. He affirmed that quackery had always existed, the tendency to it being innate; but recently the tendency to it seemed greater than ever, so that it seemed the public welcomes any and every avenue of escape from the regulars. Among the possible causes originating in the profession he enumerated the loss of the element of mystery that attracted the superstitious; the desire for novelty; the powerful trend toward operative surgery, which most men dreaded; therapeutic nihilism and pessimism; but more than all else, the loss of confidence in the disinterestedness of the physician's advice. As men suspected that the physician was managing his cases for his own pecuniary benefit rather than for the best interest of the patient, they grew reluctant to entrust themselves to his hands. This phase of commercialism had become the subject of innumerable alleged jokes, and these had a powerful influence in moulding public opinion. The remedy lay in upholding the dignity of the medical profession, in cultivating the highest professional and moral standard, in discouraging this form of humor, and in winning and holding public confidence by deserving it.

BOOK REVIEWS.

A SYSTEM OF PRACTICAL SURGERY. By Prof. E. VON BERGMANN, M.D., of Berlin, Prof. P. VON BRUNS, M.D., of Tübingen, and Prof. J. VON MIKULICZ, M.D., of Breslau. Volume V. Translated and edited by WILLIAM T. BULL, M.D., Professor of Surgery, College of Physicians and Surgeons, Columbia University, New York, and EDWARD M. FOOTE, M.D., Instructor in Surgery, College of Physicians and Surgeons, Columbia University, New York. Surgery of the Pelvis and Genito-Urinary Organs. Lea Brothers & Company, New York and Philadelphia.

WITH the appearance of the fifth volume this sumptuous work stands completed and may be judged as a whole. A careful consideration of the finished system compels even greater admiration than did the examination of its constituent parts, as they appeared one by one. That so huge an undertaking could be brought to a successful termination with a comparatively small number of months, bears evidence to the untiring industry which all of those concerned must have thrown into their labors, while the careful workmanship visible on every page, is a proof that as much thought as energy was applied to the production of this work.

The present volume covers the important subject of pelvic surgery, including the genito-urinary organs, but not the domain of the gynecologist. The first section is by Steinthal and is devoted to the surgery of the bony pelvis and its arteries. The succeeding chapters on the anus and rectum are anonymous, but the topics in question are treated with admirable thoroughness, and a well-executed colored plate illustrates the normal and diseased mucous membrane of the lower bowel as seen through the proctoscope. The affections of the kidney and ureter are discussed by Schede, in what is the largest subdivision of the volume. Its completeness may be judged of since it covers almost 250 pages. Especial stress is laid on diagnostic measures and the technic of and instruments for, cystoscopy, catheterization of the ureters and segregation of the urine are described and illustrated in most satisfactory fashion. Even the subject of cryoscopy is elaborated, both from the theoretical and practical standpoint. Diseases of the bladder and prostate have been allotted to Nitze and Sonnenburg, and here further information is given regarding cystoscopic methods, together with some

beautifully reproduced photographs taken through this instrument. Körte and Rammstedt are responsible for the section on diseases of the urethra (exclusive of venereal diseases), while the authorship of the succeeding subdivision on the penis is not given. The closing chapters of the book are in the scrotum, testicle, seminal vesicles and vas deferens, and Bramman has written an instructive and practical essay on this branch of genito-urinary surgery.

A word should be said regarding the index, which may make or mar the utility of so extensive a system as this. In the present instance the general index, placed at the end of Vol. V, appears to be above reproach, and should make information contained in any of the volumes readily accessible. The illustrations in this volume are, if anything, superior in execution and interest to those in the preceding books. The plates taken from Taylor's treatise on genito-urinary diseases, are especially beautiful.

It is a pleasure to see an enterprise of such magnitude brought to so happy an issue, and we foresee for the system the popularity and recognition it so richly deserves.

HOW TO COOK FOR THE SICK. By HELENA V. SACHSE. Second Edition. J. B. Lippincott Co., Philadelphia.

EVERY physician who has seen his best plans for a patient's recovery brought to naught by improper or poorly cooked food; every nurse who has been at her wits' end to tempt an indifferent appetite or to satisfy safely a capricious one; every invalid who has wearied of the limitations of a diet governed by the terse generalizations of his physician and the anxious but ignorant efforts of his family, all these—and their name is legion—will find welcome assistance in "How to Cook for the Sick." To the physician and trained nurse it will be chiefly valuable in putting into concrete and available form the dietary principles with which they are familiar, but to the uninitiated it will prove positively illuminating.

"What may she eat, Doctor?" asks the home nurse, and the doctor usually mentions a few articles of food of which the patient soon wearies, or else takes refuge in the generalization, such as, "Anything except starchy foods," which leaves the average household as much in the dark as ever. Armed with this book, however, the doctor may indicate at once an appetizing and varied diet, or, on other hand, the amateur nurse may, by its aid, interpret the doctor's general directions in terms of a practical process. The recipes are so simple and carefully expressed that mistakes and uncertainties are eliminated; and the always indispensable index is in this case further developed into a system of classified lists which enables one to turn promptly to the recipe needed, whether "liquid food," "food rich in fat," "invalid's breakfast" or a combination of all three requirements be sought.

All the dishes described sound very attractive, and the healthy reader might be pardoned for a glimmering desire to be in a position to test a few of them.

SIMON'S PHYSIOLOGICAL CHEMISTRY. By CHARLES E. SIMON, M.D., late Resident Physician, Johns Hopkins Hospital; author of Simon's Clinical Diagnosis, etc. New (2d) edition. Lea Brothers & Company, New York and Philadelphia.

YEAR by year the foundations of medicine are being sunk deeper and deeper into the strata of chemical fundamentals, and interpretations of perverted physiological functions are made possible by reason of the acquisition of such substructures in our knowledge.

The importance of the study of physiological chemistry cannot be overstated and it is a pleasure to call attention to this work because it is so well adapted to the giving of just the type of information that can be applied in the problems of medicine.

The author has made his work second to none, and we can recommend it in the highest terms.

HEALTH AND DISEASE IN RELATION TO MARRIAGE AND THE MARRIED STATE. Edited by Prof. D. H. SENATOR and Dr. med. S. KAMINER. Translated by Dr. J. Dulberg. Vol. I. The Rebman Company, New York and London.

THIS is a most extensive work. Dealing as it does with one of the oldest of social institutions it naturally lays claim to the attention of all.

The diseases ineident to the state are here very thoroughly dealt with and the work cannot but help be a mine of useful information.

In this first volume eleven chapters are included. The Hygiene of Marriage, by Prof. M. Gruber, of Munich; Inherited and Congenital Diseases, by Prof. J. Orth, of Berlin; Consanguinity and Marriage, by Prof. F. Kraus, of Berlin; Influence of Climate, Race and Nationality on Marriage, by Dr. W. Havelburg, of Berlin; Sexual Hygiene, by Prof. P. Fürbringer, of Berlin; Menstruation, Pregnancy, Child Bed and Lactation, by Dr. Kossmann, of Berlin; Constitutional Diseases, by Prof. H. Senator, of Berlin; Diseases of the Blood, by Prof. H. Rosin, of Berlin; Diseases of the Vascular System, by Prof. E. v. Leyden and Dr. W. Wolf, of Berlin; Diseases of the Respiratory Organs, by Dr. S. Kaminer, of Berlin; Diseases of the Digestive Organs, by Prof. E. A. Ewald, of Berlin, and Renal Diseases, by Dr. P. F. Richter, of Berlin.

In this ambitious program the authors have frequently strayed from the strict interpretation of their subject, but apart from this padding, as it were, the work is one to be commended.

A TEXT-BOOK OF PATHOLOGY. By JOSEPH MCFARLAND, M.D., Professor of Pathology and Bacteriology in the Medico-Chirurgical College of Philadelphia; Pathologist to the Medico-Chirurgical Hospital, Philadelphia. W. B. Saunders & Co., Philadelphia, New York and London.

THIS is truly an excellent text-book, particularly for students and practitioners of some years' standing, who have grown somewhat rusty, can benefit greatly from this recent presentation of the subject.

The work is a large one; it is no book for play-time—it is solid meat and over 800 pages of it. We can commend the setting. The illustrations are numerous and are exceptionally good. The entire book is attractive. The text is modern and we commend it to our readers as a useful reference book.

KIRKE'S HANDBOOK OF PHYSIOLOGY. Revised by FREDERICK C. BUSCH, B.S., M.D., Professor of Physiology, Medical Department, University of Buffalo. Fifth American Revision. William Wood & Company, New York.

KIRKE'S handbook has for a number of years held its place in our medical schools because of the rare ability of the author to compress within a reasonable size the many essential facts of physiology and yet not outrage the theories, nor lose to the student the general perspective.

In a manner thoroughly in line with the original thought of the author, Dr. Busch has shown himself able to do the same thing, and we are glad to welcome the fifth edition, and predict for it a speedy successor in the shape of a new sixth edition.